

WEBSTER

Riviera[®]

HEATING-COOLING CONDITIONER



THE WEBSTER

Riviera

HEATING-COOLING CONDITIONERS OFFER MANY ADVANTAGES . . .

IDEAL FOR MULTI-ROOM APPLICATIONS

Webster Riviera Heating-Cooling Conditioners are the ideal solution for multi-room air conditioning. Our design engineers have incorporated into these Riviervas the most practical and desirable features as recommended by architects and engineers across the country. This has resulted in a highly efficient product line to fully satisfy the wants and needs of today's market.



This beautiful Howard Johnson Motor Lodge in Southern Pines, North Carolina, is completely equipped with Webster Riviera Heating-Cooling Conditioners, providing each guest room with individual comfort control.

Riviera Conditioners provide the ultimate in year-round single-unit comfort—heating, filtering, and circulating in winter; cooling, dehumidifying, filtering, and circulating in summer.

ADAPTABLE TO ALL SYSTEMS

Incorporating the use of forced-flow convection for both heating and cooling, these units are for use with a central piping system, circulating hot water in winter, cold water in summer. The boiler, chiller, and accessory equipment are located in an equipment room, easily accessible for maintenance and service.

Ventilation air can be introduced through the Riviera unit or through any central system such as corridor ducts, or conditioned or unconditioned air from vertical risers. This adaptability to all systems dramatically illustrates the Riviera's extreme versatility.



Note how well the Webster Riviera Conditioner blends into the surroundings in this luxurious guest room of the Howard Johnson Motor Lodge. This modern unit allows every guest to select just the right degree of comfort for complete personal satisfaction.

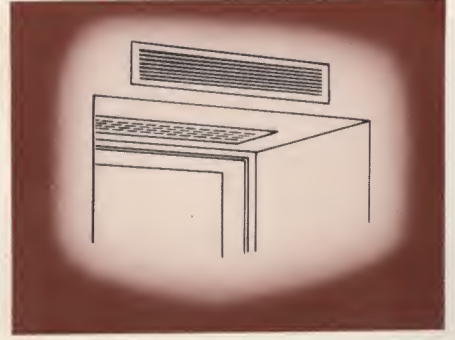
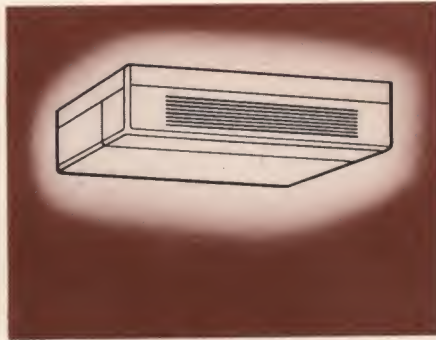
MODERN CABINET STYLING

These Riviera Conditioners are not only functionally ideal, but are also ideally styled to harmonize with any decor with their smart, streamlined appearance being teamed with exceptionally pleasing baked-on finishes.

FLEXIBILITY OF OPERATION

Individual unit control is utilized to its fullest extent for maintaining ideal, spring-like comfort conditions. A manual, LOW-NORMAL-HIGH-OFF fan switch provides individual unit control. A thermostatically controlled system can also be applied, either in zones, or room-by-room.

NEW Application and Installation Flexibility . . .



WEBSTER *Riviera* CONDITIONERS *provide* NEW Features...NEW Flexibility... GREATER Compactness



A model C-90 Webster Riviera Conditioner is shown here in an outstanding application in a modern, executive office. Providing the utmost comfort to the occupant, this smart, streamlined cabinet of the Riviera blends excellently with the room's modern furnishings.

COMPACT UNITS

These Riviera conditioning units were developed to combine all of the advantages of heating and cooling in one compact unit. All of the components were expertly designed by Webster engineers to give the desired performance within these appealing, space-saving units. Too, a great deal of space and initial cost is saved by utilizing the same piping system for both heating and cooling. This is compared to the more cumbersome and space-consuming systems that would be necessary to accomplish the same heating-cooling capacities as the Rivieras.

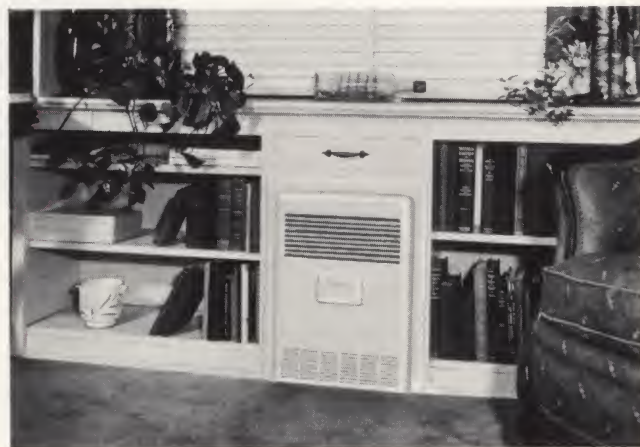
COMPLETE LINE TO FIT ALL APPLICATIONS

Because of the completeness in choice of sizes, capacities, and arrangements, Riviera Air Conditioners are available to fit every need—whether commercial, institutional, or residential—in new or existing structures.

Outstanding examples of these various applications are:

Motels	Clinics
Hotels	Office Buildings
Garden Apartments	Institutions
Hospitals	Residences

This flexibility of application evolved from expert planning and designing by Webster engineers. When the Riviera is teamed with the Webster Deluxe Series Cabinet Air Conditioners, capacities ranging from $\frac{1}{8}$ ton to 5 tons can be obtained through **12 models with infinite variations**. This means that you can depend on Webster as a single source of supply for any given job because every requirement can be met with this complete, versatile line of Webster Air Conditioners.

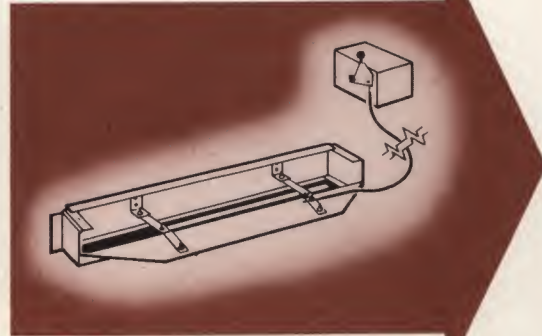
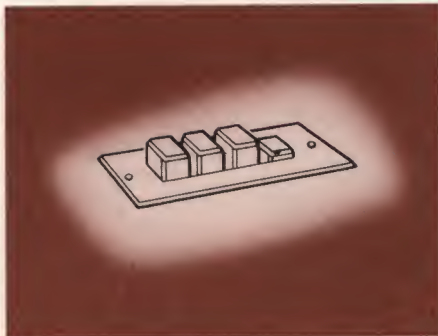
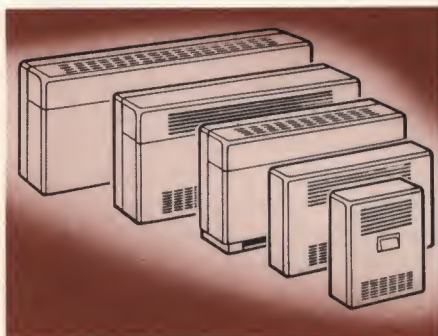


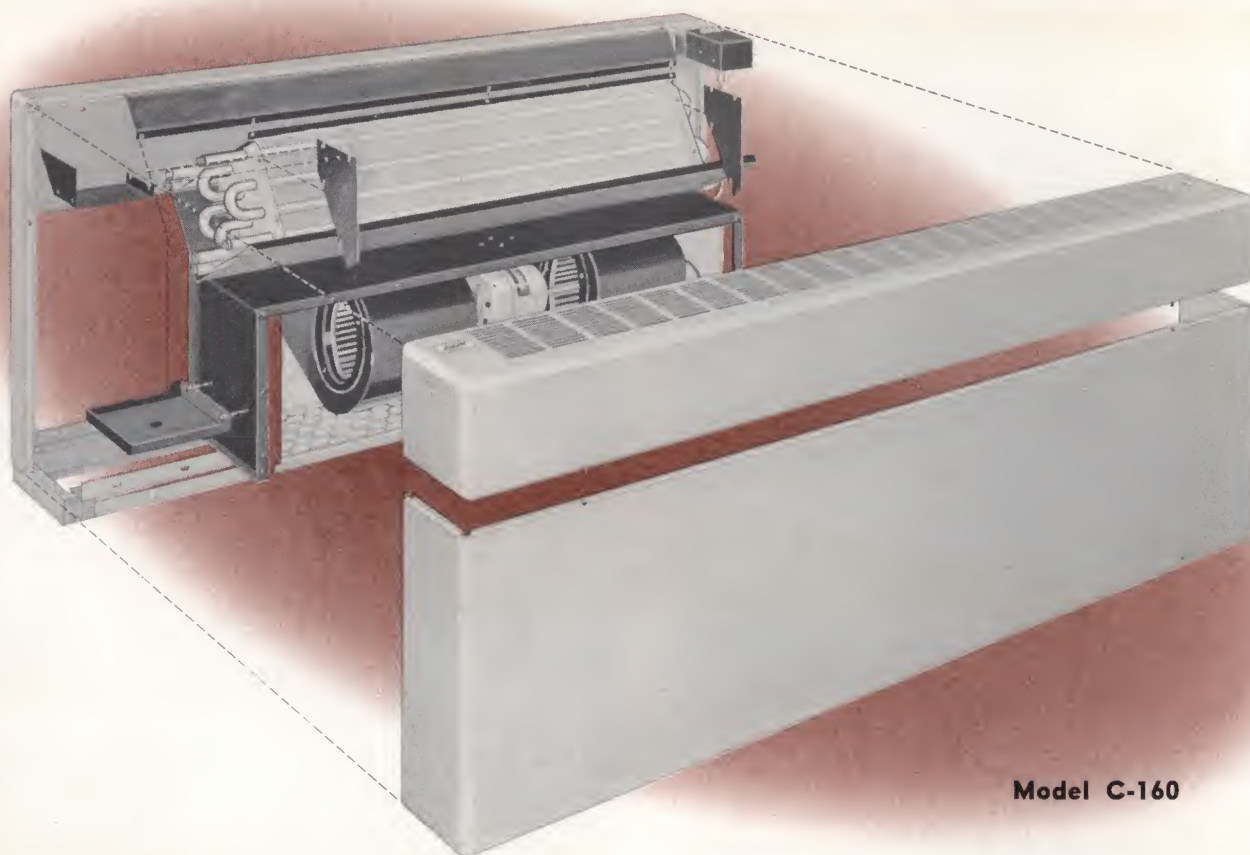
A prime example of the residential application of the Riviera Heating-Cooling Conditioners is this model C-41 which is "built-in" with the surrounding bookcases of this den, presenting an excellent appearance together with its outstanding performance.

OUTSTANDING FEATURES

Outstanding Riviera features are described in detail in the following pages, including blowers, motors, coils, cabinets, drain pans, and filters. Notice the "built-in" qualities that make the Riviera Heating-Cooling Conditioners the finest.

A Host of NEW Features...





Model C-160

Webster Riviera Air Conditioners incorporate a wide variety of outstanding features: styled in good taste—durability—quiet operation—complete adaptability—exceptional comfort—ease of installation—all at a modest cost.

AVAILABLE IN FIVE MODELS

Riviera Conditioners are produced in five models—C-90, C-160, and C-240 for commercial use, and C-41 and C-82 for motels, clinics, residences, and similar applications—in cooling capacities from 1/3 ton to almost 2 tons. The C-90, C-160, and C-240 models are available in vertical cabinet styles—free-standing, semi-recessed, and recessed—and in vertical concealed units with either top or face discharge. These three models are also available in horizontal styles—in concealed and cabinet arrangements, with either bottom or end intakes. The C-41 and C-82 models are available in vertical cabinet styles—free-standing, semi-recessed, and recessed. All models are approved by Underwriter's Laboratories.

CABINETS

Riviera Air Conditioners are sturdily constructed of quality furniture steel, with all corners smoothly rounded to present a pleasing, well-styled appearance. Fabrication of the cabinets is by welding to provide an integral and sturdy enclosure. Removable panels, which allow easy access to all internal parts, are held with concealed fasteners, adding greatly to the overall

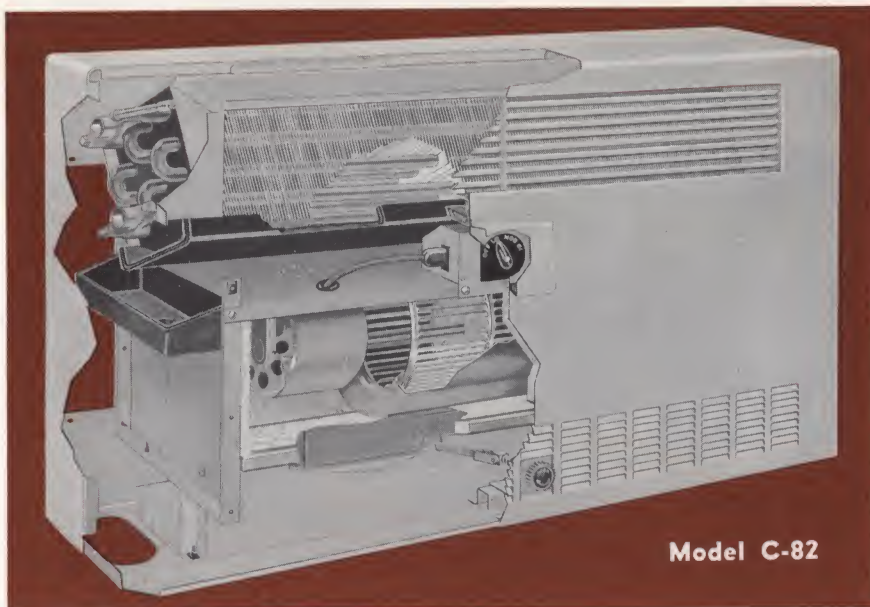
appearance of the cabinet. All cabinets are thermally insulated for top performance resulting in the elimination of sweating and an effective control against heat loss. All of these cabinets are phosphatized before painting to provide corrosion resistance and a greater bond between steel and paint, which results in a chip-resistant finish. Cabinets of the C-41 and C-82 models are finished with a baked prime coat. All other models have a green metallic enamel finish.

QUIET OPERATION

Amazingly quiet operation of the Riviera Conditioner is accomplished by properly engineered assemblies incorporating the right combinations of blowers, motor, and coil with the blower assembly being acoustically treated.

HEATING-COOLING COIL

All Riviera Conditioners, with the exception of Model C-41, feature a reversible coil. This design of the coil and its associated parts permits reversing the coil end for end. Regardless of the coil position, a unique arrangement insures a high point for venting and a low point for draining. All models have the heavy-duty blast-coil type construction, using aluminum plate fins securely bonded to copper tubes, suitable for 100 psi. These oversized coils assure ample capacity for both heating and cooling loads. Model C-41 is equipped with a two-row coil; Models C-82, C-90, C-160 with a three-row coil; and Model C-240 with a four-row coil.



Model C-82

PIPING CONNECTIONS

All models, except Model C-41 and the horizontal cabinet styles, are available with either right hand or left hand piping connections. Reversing of the piping connections can be done in the field, if necessary. Model C-41 and the horizontal cabinet styles are available with left hand connections only.

Ample pipe space is not just an idle dream when you specify the C-90, C-160, and C-240 Webster Riviera Conditioners. Here is **eleven** full inches of piping cavity within the unit, more than enough to conceal all control arrangements, stop valves and balancing fittings . . . and still leave enough room to work, a feature that's found on no other unit. The C-41 and C-82 models do not require this large pipe cavity because complex control equipment is not normally required.

BLOWER ASSEMBLY

Unitized blower section assembly . . . centrifugal blowers mounted directly to the motor shaft in all models . . . remove and install as a unit without disturbing the alignment of the assembly. Blower wheels are statically and dynamically balanced for quiet, vibration-free operation.

MOTORS

Blower motors are shaded-pole type, with automatic reset overload protection. All motors, with the exception of that provided with Model C-41, have porous bronze sleeve bearings and extra large oil reservoir which assures adequate lubrication even at slow-speed operation, together with oil tubes that are provided for periodic lubrication. Permanent split capacitor motors are available as optional equipment. C-41 motors are provided with porous bronze sleeve bearings with oversized, sealed oil reservoirs for permanent lubrication.

DRAIN PANS

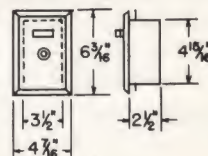
All Riviera models, except Model C-41, are equipped with a double drain pan arrangement with an air space in between which completely eliminates the formation of condensate on the underside of the pan. Plans for Model C-41 are constructed of heavy gauge steel, completely insulated. All pans are phosphatized, primed with phenolic, and coated with asphalt. Auxiliary drain pans are also provided in the pipe cavities as standard equipment on all models.

FILTERS

All Riviera Conditioners are provided with replaceable filters. A cleanable type can be supplied optionally. The C-41 filter is 1/2" thick; all others are 1". On all models, filters are readily accessible for inspection or replacement.

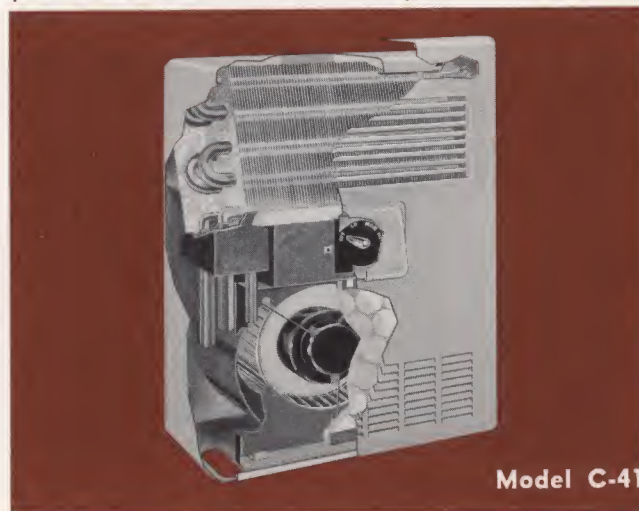
CONTROLS

All vertical cabinet and recessed models have speed controls incorporated as an integral part of the cabinet design. All horizontal and concealed models are furnished with remote control boxes, as illustrated, with a decorative, brushed aluminum cover. The controls provide a choice of OFF-LOW-NORMAL-HIGH fan speeds.

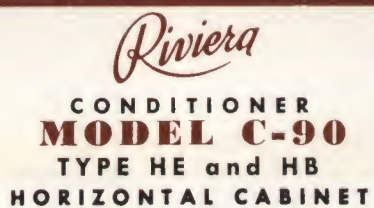


DAMPERS

All Webster Riviera Conditioners may be provided with ventilation air openings providing for the introduction of 25% of rated CFM. A manually controlled, positive closing damper may be supplied as optional equipment when ventilation is required. Baffles are provided to minimize blow-through.



Model C-41



1/40 HP

1.4 AMPS

115 WATTS

CFM
270
190
130

(HIGH)
(NORMAL)
(LOW)

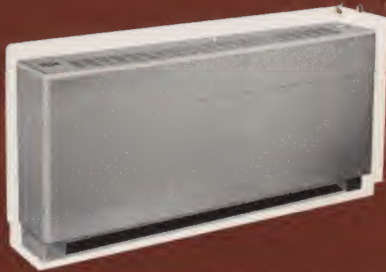
CORRECTION FACTOR
SENS. TOTAL
1.00 1.00
0.77 0.82
0.51 0.60

COOLING CAPACITIES

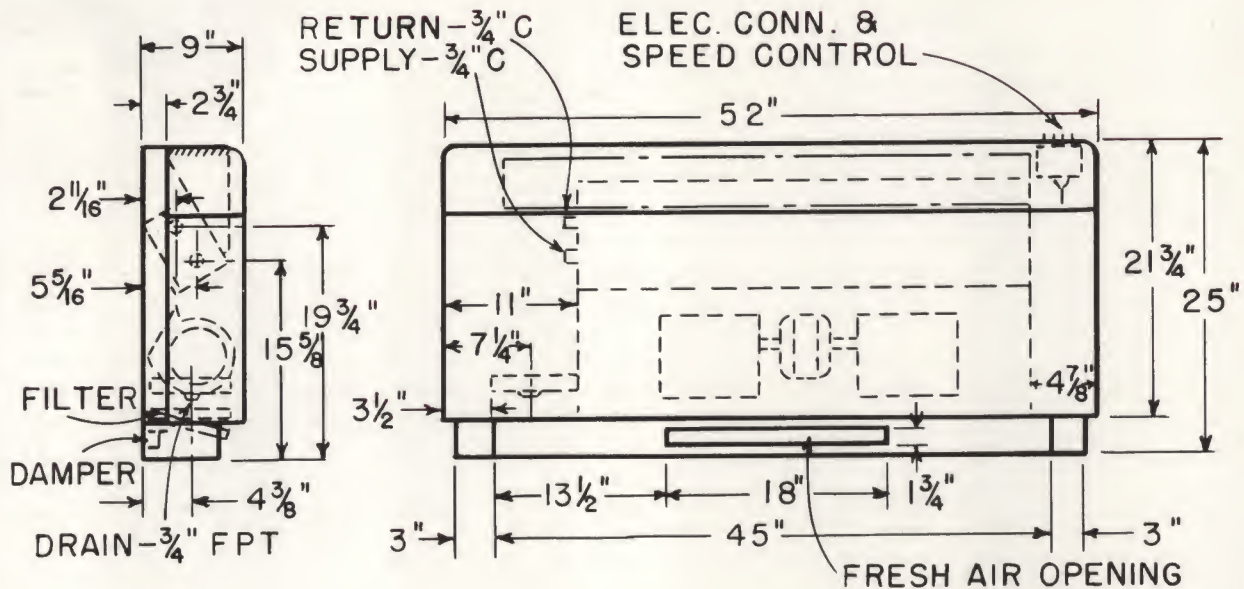
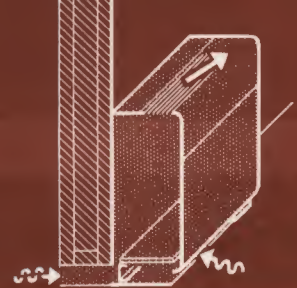
Inlet Water Temp. °F	Capac. and Water Temp. Rise	2.0 GPM-1.0 Ft P.D.			2.5 GPM-1.6 Ft P.D.			3.0 GPM-2.2 Ft P.D.			4.0 GPM-4.0 Ft P.D.		
		75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB
40	Total	7680	8980	10380	8020	9420	10820	8280	9680	11180	8630	10080	11630
	Sens.	5240	5980	6670	5400	6120	6900	5500	6280	7050	5700	6480	7260
	T. R. °F	7.7	9.0	10.4	6.4	7.5	8.7	5.5	6.5	7.5	4.3	5.0	5.8
42	Total	7010	8310	9710	7330	8730	10130	7560	8960	10460	7880	9330	10880
	Sens.	4940	5690	6430	5150	5860	6600	5210	5960	6750	5400	6160	6990
	T. R. °F	7.0	8.3	9.7	5.9	7.0	8.1	5.1	6.0	7.0	3.9	4.7	5.4
45	Total	6020	7320	8720	6290	7690	9090	6490	7890	9390	6770	8220	9770
	Sens.	4590	5240	6040	4690	5400	6150	4770	5510	6310	4910	5710	6530
	T. R. °F	6.0	7.3	8.7	5.0	6.2	7.3	4.3	5.3	6.3	3.4	4.1	4.9
48	Total	5020	6320	7720	5240	6640	8040	5420	6820	8320	5650	7100	8650
	Sens.	4150	4850	5590	4230	4980	5750	4330	5090	5850	4450	5210	6050
	T. R. °F	5.0	6.3	7.7	4.2	5.3	6.4	3.6	4.5	5.5	2.8	3.6	4.3
50	Total	4350	5650	7050	4550	5950	7350	4700	6100	7600	4900	6350	7900
	Sens.	3850	4550	5340	3950	4700	5450	4010	4760	5540	4150	4900	5710
	T. R. °F	4.3	5.6	7.0	3.6	4.8	5.9	3.1	4.1	5.1	2.4	3.2	3.9

HEATING CAPACITIES AT 65° ENT. AIR

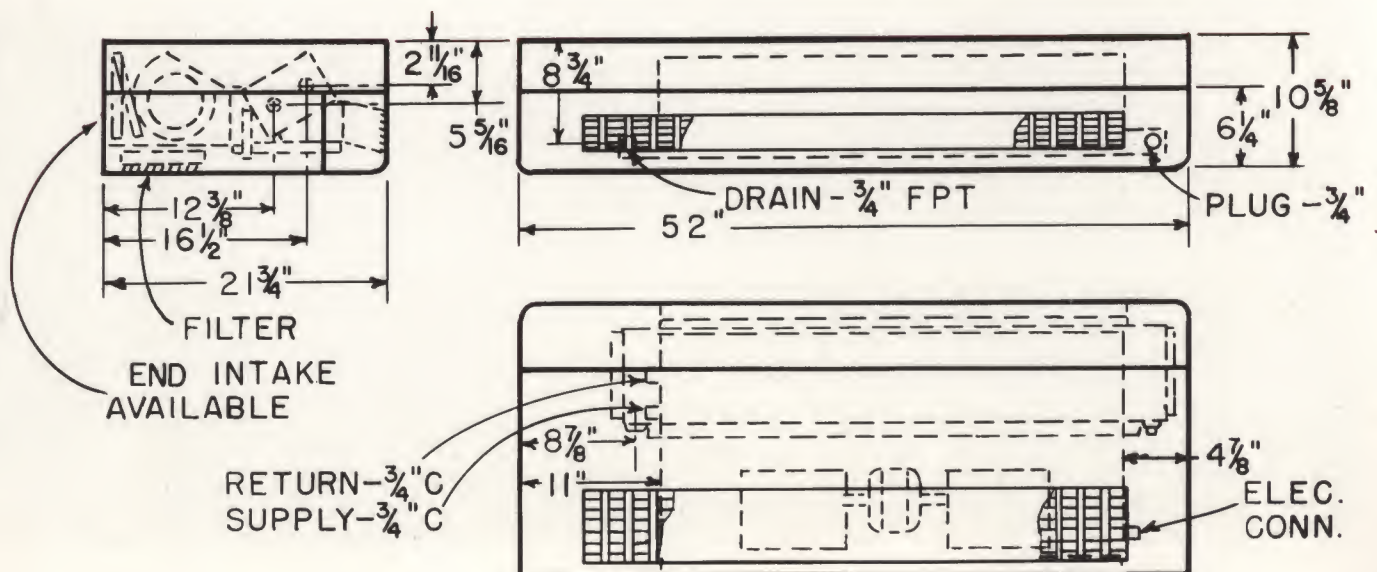
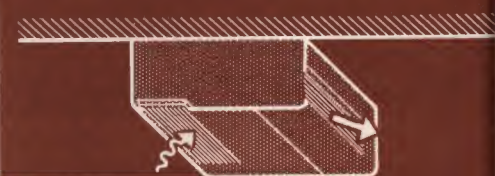
Inlet Water Temp. °F	CFM Std. Air	Fan RPM	2.0 GPM-1.0 Ft P.D.		2.5 GPM-1.6 Ft P.D.		3.0 GPM-2.2 Ft P.D.		4.0 GPM-4.0 Ft P.D.	
			BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F
140	270	1420	15550	16	16070	13	16430	11	16940	8
	190	1000	11890	12	12230	10	12470	8	12780	6
	130	700	8360	8	8560	7	8690	6	8870	4
160	270	1420	19690	20	20350	16	20810	14	21460	11
	190	1000	15060	15	15490	12	15800	10	16180	8
	130	700	10590	11	10840	9	11000	7	11240	6
180	270	1420	23840	24	24630	20	25190	17	25980	13
	190	1000	18230	18	18750	15	19120	13	19580	10
	130	700	12820	13	13120	11	13320	9	13600	7
200	270	1420	27990	28	28920	23	29570	20	30500	15
	190	1000	21400	21	22010	18	22450	15	22990	11
	130	700	15050	15	15400	12	15630	10	15970	8



Riviera
 CONDITIONER
MODEL C-160
 TYPE VT and VF
 VERTICAL CABINET



Riviera
 CONDITIONER
MODEL C-160
 TYPE HE and HB
 HORIZONTAL CABINET



Riviera

MODEL C-160

CFM
470
340
220

..... (HIGH)
..... (NORMAL)
..... (LOW)

CORRECTION FACTOR	
SENS.	TOTAL
1.00	1.00
0.81	0.83
0.52	0.57

1/20 HP

2.25 AMPS

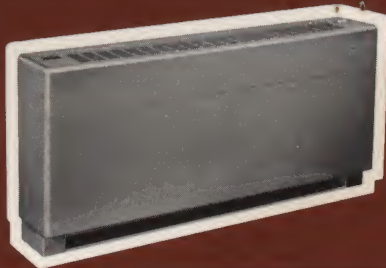
170 WATTS

COOLING CAPACITIES

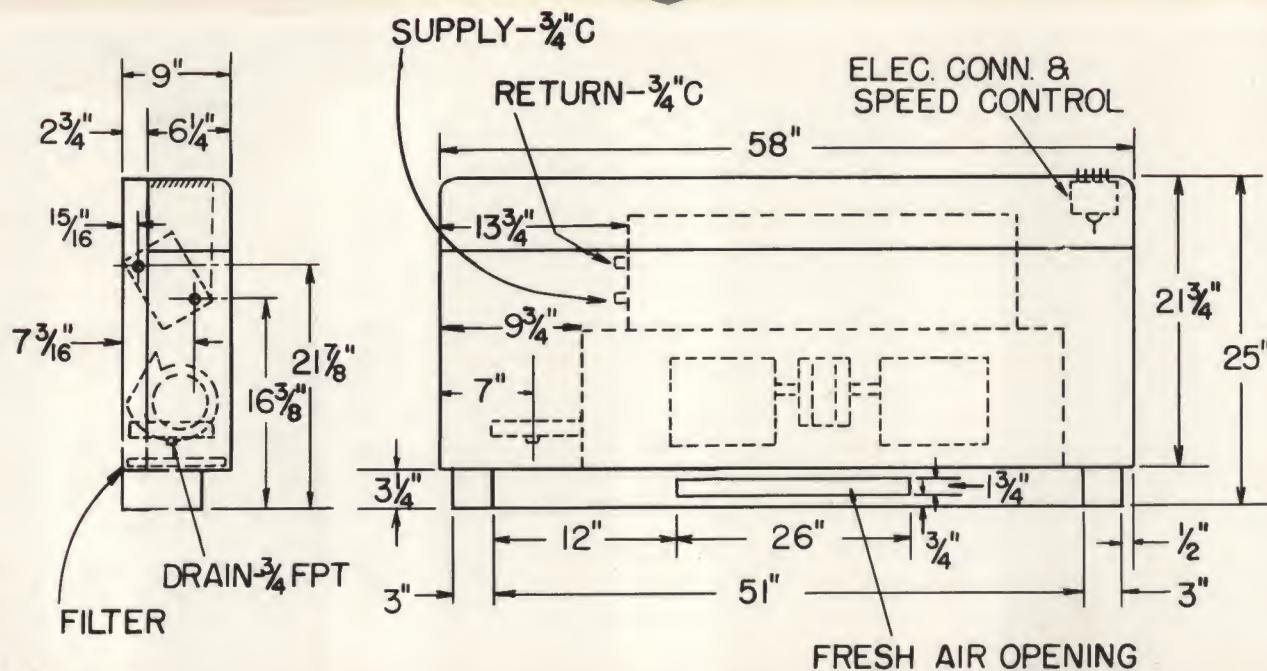
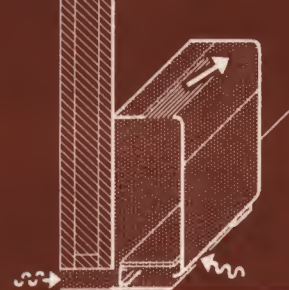
Inlet Water Temp. °F	Capac. and Water Temp. Rise	2.0 GPM-1.4 Ft P.D.			2.5 GPM-2.0 Ft P.D.			3.0 GPM-2.8 Ft P.D.			4.0 GPM-4.8 Ft P.D.		
		75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB
40	Total	11360	13460	15260	12000	14100	16200	12500	14750	16800	13300	15600	18000
	Sens.	8560	9700	10790	9000	10100	11300	9150	10350	11570	9590	10860	12090
	T. R. °F	11.4	13.5	15.3	9.6	11.4	13.0	8.4	9.9	11.2	6.7	7.8	9.0
42	Total	10370	12470	14270	10950	13050	15150	11410	13660	15710	12140	14440	16840
	Sens.	8120	9310	10400	8450	9650	10800	8660	9850	11110	9030	10340	11540
	T. R. °F	10.4	12.5	14.3	8.8	10.4	12.1	7.6	9.1	10.5	6.1	7.2	8.4
45	Total	8880	10980	12780	9380	11480	13580	9780	12030	14080	10400	12700	15100
	Sens.	7470	8610	9750	7750	8980	10100	7940	9200	10360	8260	9640	10810
	T. R. °F	8.9	11.0	12.8	7.5	9.2	10.8	6.5	8.0	9.4	5.2	6.4	7.6
48	Total	7390	9490	11290	7800	9900	12000	8140	10390	12440	8660	10960	13360
	Sens.	6830	7920	9110	7050	8230	9400	7210	8440	9650	7480	8760	10080
	T. R. °F	7.4	9.5	11.3	6.2	7.9	9.6	5.4	7.0	8.3	4.3	5.5	6.7
50	Total	6400	8500	10300	6750	8850	10950	7050	9300	11350	7500	9800	12200
	Sens.	6400	7530	8660	6600	7780	9000	6710	7990	9200	6980	8210	9540
	T. R. °F	6.4	8.5	10.3	5.4	7.1	8.8	4.7	6.2	7.6	3.8	4.9	6.1

HEATING CAPACITIES AT 65° ENT. AIR

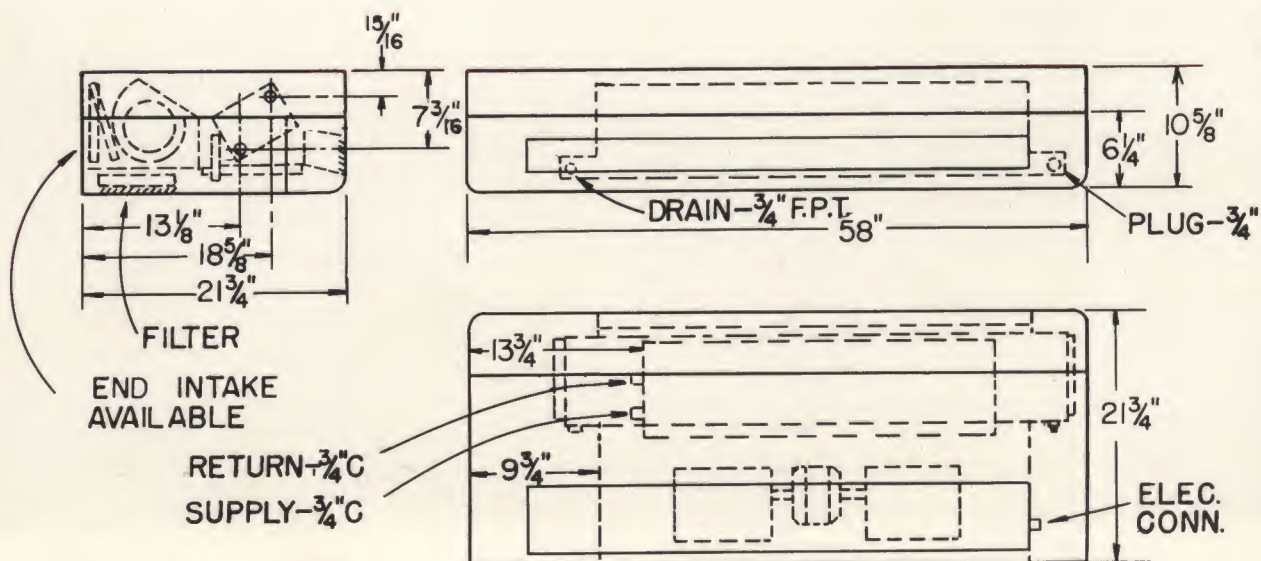
Inlet Water Temp. °F	CFM Std. Air	Fan RPM	2.0 GPM-1.4 Ft P.D.		2.5 GPM-2.0 Ft P.D.		3.0 GPM-2.8 Ft P.D.		4.0 GPM-4.8 Ft P.D.	
			BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F
140	470	1500	23660	24	24750	20	25430	17	26550	13
	340	1100	19330	19	20100	16	20550	14	21340	11
	220	700	12890	13	13290	11	13550	9	13910	7
160	470	1500	29970	30	31350	25	32210	22	33680	17
	340	1100	24480	24	25460	20	26030	17	27030	14
	220	700	16320	16	16830	13	17160	11	17160	9
180	470	1500	36280	36	37950	30	38990	26	40710	20
	340	1100	29640	30	30820	25	31510	21	32720	16
	220	700	19760	20	20380	16	20770	14	21320	11
200	470	1500	42590	43	44550	36	45770	31	47790	24
	340	1100	34790	35	36180	29	36990	25	38410	19
	220	700	23190	23	23920	19	24390	16	25030	13



Riviera
 CONDITIONER
MODEL C-240
 TYPE VT and VF
 VERTICAL CABINET



Riviera
 CONDITIONER
MODEL C-240
 TYPE HE and HB
 HORIZONTAL CABINET



1/20 HP

2.4 AMPS

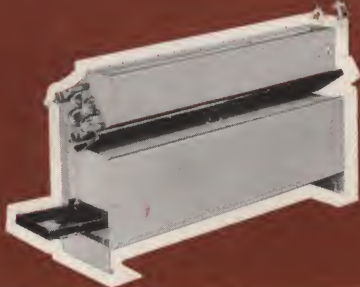
174 WATTS

COOLING CAPACITIES

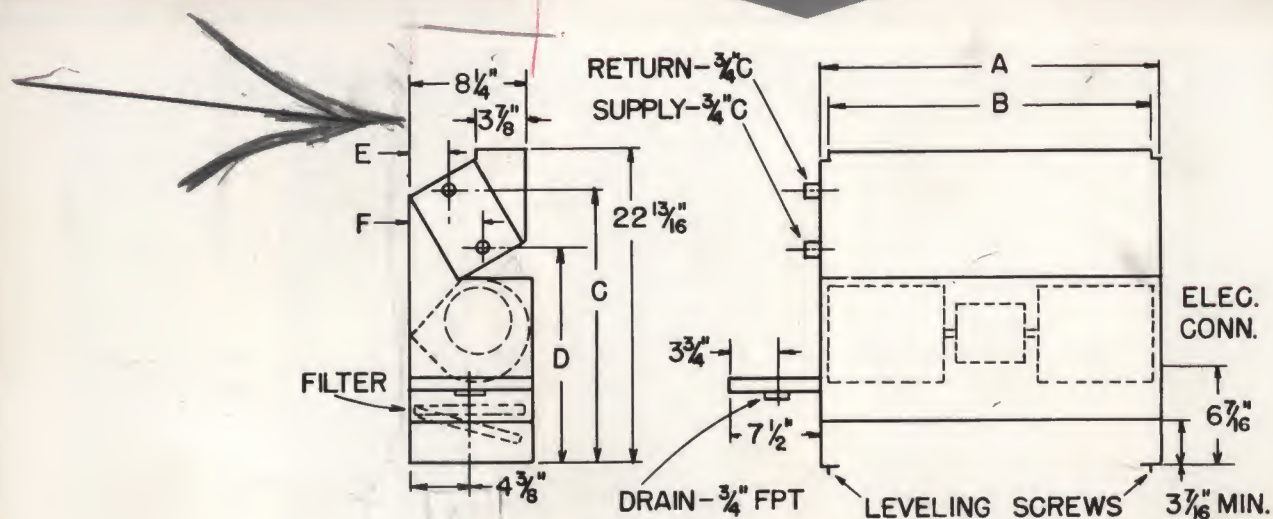
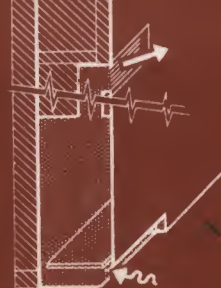
Inlet Water Temp. °F	Capac. and Water Temp. Rise	4.0 GPM-4.0 Ft P.D.			5.0 GPM-6.0 Ft P.D.			6.0 GPM-9.0 Ft P.D.			7.0 GPM-12.0 Ft P.D.		
		75° DB	80° DB	85° DB	75° DB	80° DB	85° DB	75° DB	80° DB	85° DB	75° DB	80° DB	85° DB
		63° WB	67° WB	71° WB	63° WB	67° WB	71° WB	63° WB	67° WB	71° WB	63° WB	67° WB	71° WB
40	Total	18300	21500	24800	19800	23200	26700	20500	24000	27700	21000	24700	28500
	Sens.	12200	13900	15600	12400	14100	15700	12700	14400	16200	12800	14600	16400
	T. R. °F	9.2	10.7	12.4	7.9	9.3	10.7	6.8	8.0	9.3	6.0	7.1	8.1
42	Total	16700	19900	23200	18100	21500	25000	18700	22200	25900	19200	22900	26700
	Sens.	11600	13300	14900	11800	13500	15200	12000	13700	15500	12100	13900	15700
	T. R. °F	8.3	10.0	11.6	7.2	8.6	10.0	6.2	7.4	8.6	5.5	6.5	7.6
45	Total	14300	17600	20800	15500	18900	22500	16100	19600	23300	16500	20100	23900
	Sens.	10400	12100	14000	10800	12500	14200	10900	12700	14500	11100	12900	14300
	T. R. °F	7.1	8.8	10.4	6.2	7.6	9.0	5.4	6.5	7.8	4.7	5.7	6.8
48	Total	11900	15200	18500	13000	15500	19900	13400	16900	20600	13700	17400	21200
	Sens.	9600	11300	13000	9800	11600	13200	9900	11700	13400	10000	11900	13600
	T. R. °F	5.9	7.6	9.3	5.2	6.2	8.0	4.5	5.6	6.9	3.9	5.0	6.1
50	Total	10300	13600	16900	11300	14700	18200	11600	15100	18800	11900	15600	19400
	Sens.	9000	10700	12300	9100	10800	12600	9200	11000	12800	9400	11100	12900
	T. R. °F	5.1	6.8	8.5	4.5	5.9	7.3	3.9	5.0	6.3	3.4	4.5	5.5

HEATING CAPACITIES AT 65° ENT. AIR

Inlet Water Temp. °F	CFM Std. Air	Fan RPM	4.0 GPM-4.0 Ft P.D.		5.0 GPM-6.0 Ft P.D.		6.0 GPM-9.0 Ft P.D.		7.0 GPM-12.0 Ft P.D.	
			BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F
140	595	1070	32600	16.3	34600	13.8	35500	11.8	36100	10.3
	490	870	29200	14.6	31200	12.5	31600	10.5	32200	9.2
	330	600	19850	10.0	21100	8.5	21400	7.1	21700	6.2
160	595	1070	41300	20.6	43800	17.5	44900	15.0	45700	13.1
	490	870	37000	18.5	39500	15.8	40000	13.3	40800	11.7
	330	600	25100	12.5	26700	10.7	27200	9.0	27400	7.8
180	595	1070	50000	25.0	53200	21.2	54400	18.1	55400	15.8
	490	870	44900	22.4	47800	19.1	48500	16.1	49500	14.2
	330	600	30500	15.3	32300	12.9	32900	11.0	33200	9.5
200	595	1070	58700	29.4	62400	25.0	63900	21.3	65000	18.6
	490	870	52600	26.4	56200	22.4	57000	19.0	58000	16.6
	330	600	35800	17.9	37900	15.2	38600	12.9	39000	11.1



Riviera
CONDITIONER
MODELS C-90 • C-160 • C-240
TYPE VC
VERTICAL CONCEALED

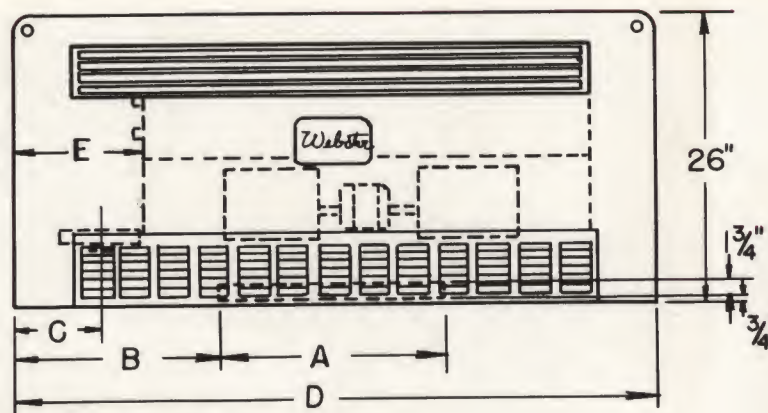
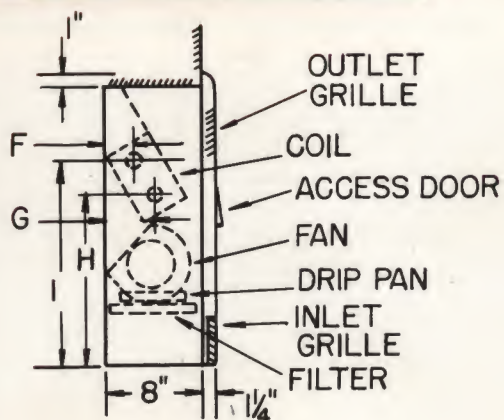


MODEL	A	B	C	D	E	F
C-90	24 1/8"	22 1/8"	19 1/8"	15 1/8"	2 1/16"	5 3/8"
C-160	38 1/8"	36 1/8"	19 3/8"	15 1/8"	2 1/16"	5 3/8"
C-240	45 1/2"	36 3/8"	22 1/8"	16 3/8"	1"	7 3/8"

160 - 20-10
184

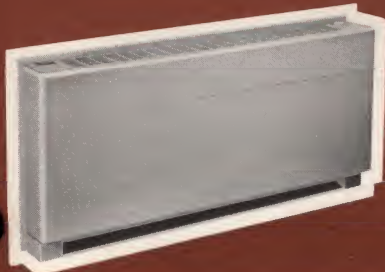


Riviera
CONDITIONER
MODELS C-90 • C-160 • C-240
TYPE VRF
VERTICAL RECESSED

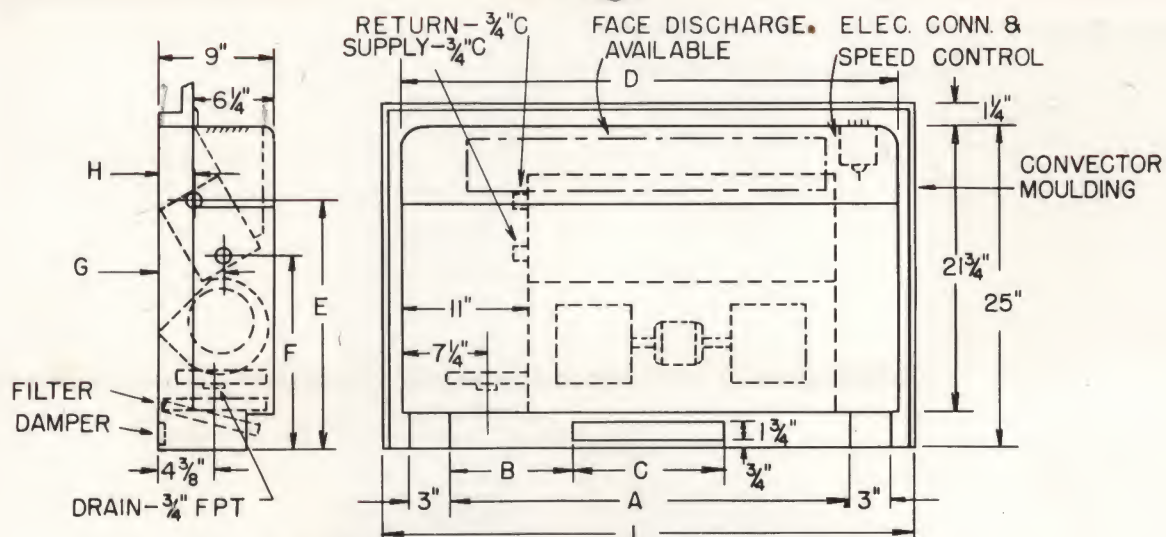
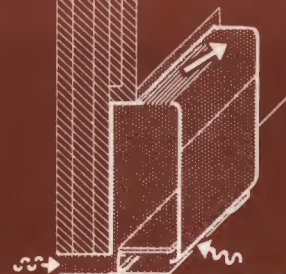


MODEL	A	B	C	D	E	F	G	H	I
C-90	12"	13"	7 1/4"	38"	11"	2 1/16"	5 3/8"	15 3/8"	19 3/4"
C-160	18"	17"	7 1/4"	52"	11"	2 1/16"	5 3/8"	15 3/8"	19 3/4"
C-240	26"	16"	7"	58"	13 3/4"	1 5/8"	7 3/8"	16 3/8"	21 3/8"

172
216



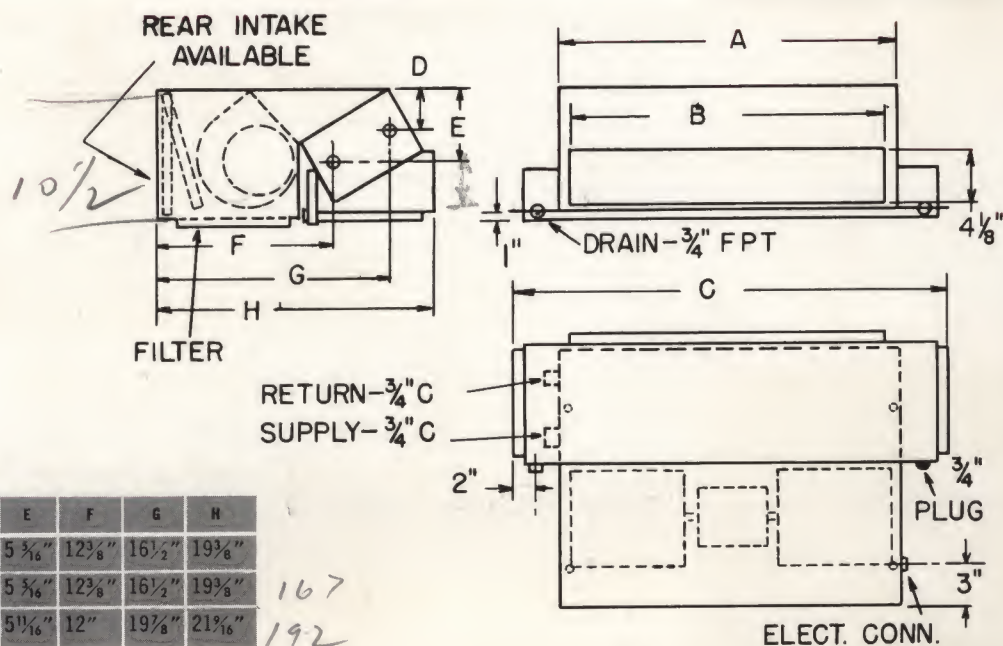
Riviera
CONDITIONER
MODELS C-90 • C-160 • C-240
TYPE VST and VSF
VERTICAL SEMI-RECESSED



MODEL	A	B	C	D	E	F	G	H	I
C-90	31"	9 $\frac{1}{2}$ "	12"	38"	19 $\frac{3}{4}$ "	15 $\frac{5}{8}$ "	5 $\frac{5}{8}$ "	2 $\frac{1}{16}$ "	40 $\frac{1}{2}$ "
C-160	45"	13 $\frac{1}{2}$ "	18"	52"	19 $\frac{3}{4}$ "	15 $\frac{5}{8}$ "	5 $\frac{5}{8}$ "	2 $\frac{1}{16}$ "	54 $\frac{1}{2}$ "
C-240	51"	12 $\frac{1}{2}$ "	26"	58"	21 $\frac{7}{8}$ "	16 $\frac{3}{8}$ "	7 $\frac{3}{8}$ "	1 $\frac{5}{16}$ "	60 $\frac{1}{2}$ "



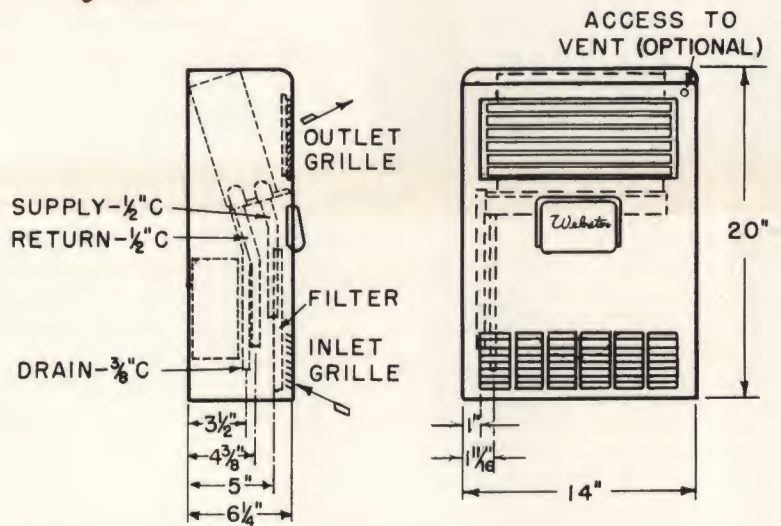
Riviera
CONDITIONER
MODELS C-90 • C-160 • C-240
TYPE HCB and HCE
HORIZONTAL CONCEALED



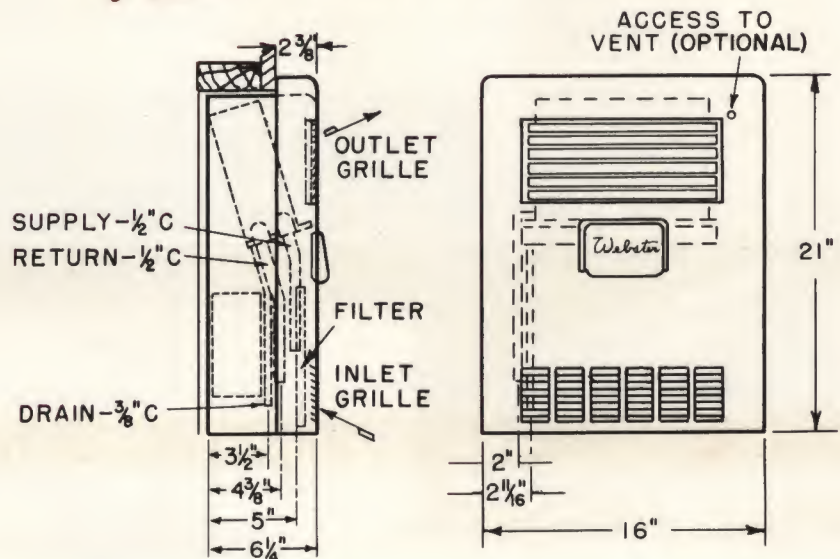
MODEL	A	B	C	D	E	F	G	H
C-90	24 $\frac{1}{8}$ "	22 $\frac{1}{8}$ "	30 $\frac{3}{8}$ "	21 $\frac{1}{8}$ "	5 $\frac{3}{8}$ "	12 $\frac{3}{8}$ "	16 $\frac{1}{2}$ "	19 $\frac{3}{8}$ "
C-160	38 $\frac{1}{8}$ "	36 $\frac{1}{8}$ "	44 $\frac{1}{8}$ "	21 $\frac{1}{8}$ "	5 $\frac{3}{8}$ "	12 $\frac{3}{8}$ "	16 $\frac{1}{2}$ "	19 $\frac{3}{8}$ "
C-240	44 $\frac{1}{8}$ "	36 $\frac{1}{8}$ "	53 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	5 $\frac{1}{8}$ "	12"	19 $\frac{3}{8}$ "	21 $\frac{1}{8}$ "

167
192

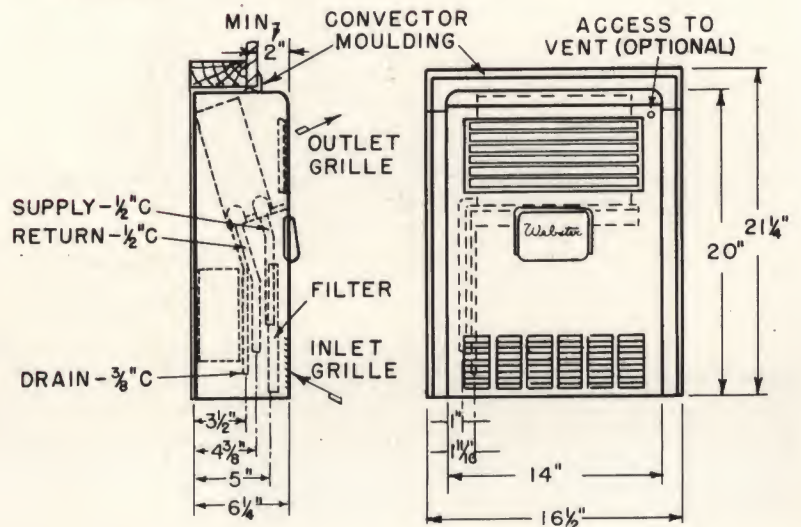
Riviera MODEL C-41 VF



Riviera MODEL C-41 VRF



Riviera MODEL C-41 VSF



CFM
125
90
65

.....(HIGH).....
.....(NORMAL).....
.....(LOW).....

CORRECTION FACTOR
SENS. TOTAL
1.00 1.00
0.73 0.80
0.50 0.57

1/80 HP

0.7 AMPS

60 WATTS

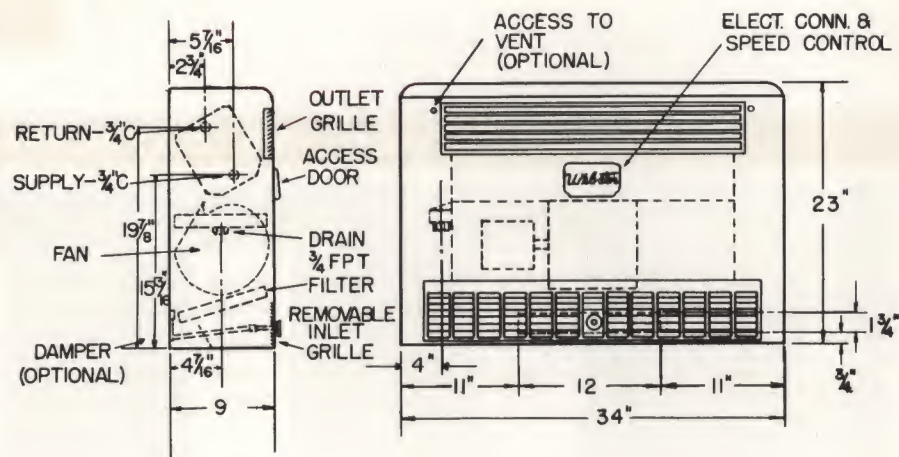
COOLING CAPACITIES

Inlet Water Temp. °F	Capac. and Water Temp. Rise	1.0 GPM-0.8 Ft P.D.			1.25 GPM-1.2 Ft P.D.			1.75 GPM-2.2 Ft P.D.			2.25 GPM-3.5 Ft P.D.		
		75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB	75° DB 63° WB	80° DB 67° WB	85° DB 71° WB
		Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F	Total Sens. T. R. °F
40		3340 2400 6.7	3900 2750 7.8	4490 3090 9.0	3450 2480 5.5	4050 2830 6.5	4650 3200 7.5	3640 2560 4.2	4210 2940 4.8	4910 3320 5.6	3710 2630 3.3	4360 3020 3.8	5010 3380 4.4
42		3050 2280 6.1	3610 2620 7.2	4200 2970 8.4	3150 2330 5.1	3750 2700 6.0	4350 3050 7.0	3330 2410 3.8	3900 2820 4.5	4600 3170 5.2	3390 2480 3.0	4040 2860 3.6	4690 3250 4.2
45		2620 2080 5.2	3180 2440 6.3	3770 2770 7.5	2850 2200 4.6	3450 2550 5.5	4050 2930 6.5	3020 2260 3.4	3590 2660 4.1	4290 3020 4.9	3070 2330 2.7	3720 2710 3.3	4370 3100 3.9
48		2190 1880 4.3	2750 2250 5.5	3630 2710 7.2	2550 2080 4.1	3150 2430 5.0	3750 2780 6.0	2700 2130 3.1	3270 2510 3.7	3970 2890 4.5	2740 2170 2.4	3390 2560 3.0	4040 2940 3.6
50		1900 1730 3.8	2460 2100 4.9	3340 2600 6.7	2250 1930 3.6	2850 2300 4.6	3450 2650 5.5	2390 1980 2.7	2960 2360 3.4	3660 2740 4.2	2420 2020 2.1	3070 2430 2.7	3720 2810 3.3

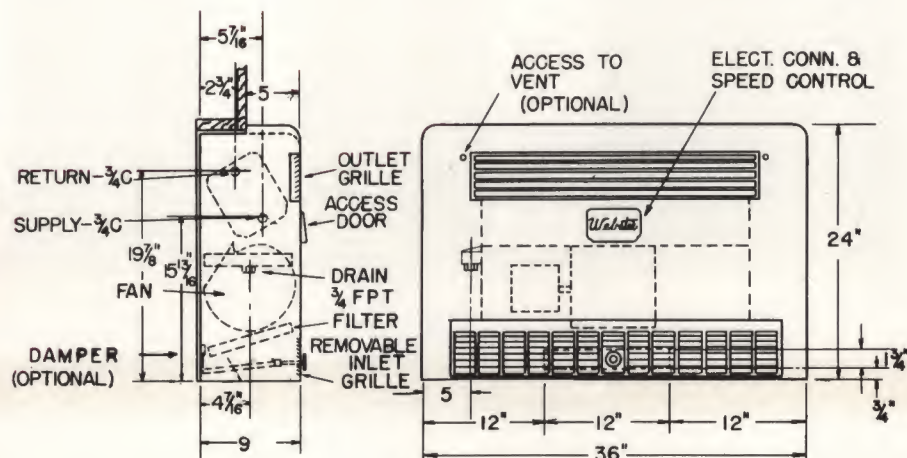
HEATING CAPACITIES AT 65° ENT. AIR

Inlet Water Temp. °F	CFM Std. Air	Fan RPM	1.0 GPM-0.8 Ft P.D.		1.25 GPM-1.2 Ft P.D.		1.75 GPM-2.2 Ft P.D.		2.25 GPM-3.5 Ft P.D.	
			BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F
140	125	980	6560	13	6742	11	6980	8	7120	6
	90	700	5030	10	5150	8	5310	6	5390	5
	65	500	3590	7	3640	6	3750	4	3810	3
160	125	980	8300	17	8540	14	8840	10	9020	8
	90	700	6370	13	6530	10	6730	8	6820	6
	65	500	4540	9	4610	7	4750	5	4830	4
180	125	980	10050	20	10340	17	10710	12	10910	10
	90	700	7710	15	7900	13	8140	9	8260	7
	65	500	5500	11	5580	9	5750	7	5840	5
200	125	980	11800	24	12140	19	12570	14	12810	11
	90	700	9050	18	9270	15	9560	11	9690	9
	65	500	6450	13	6350	10	6750	8	6860	6

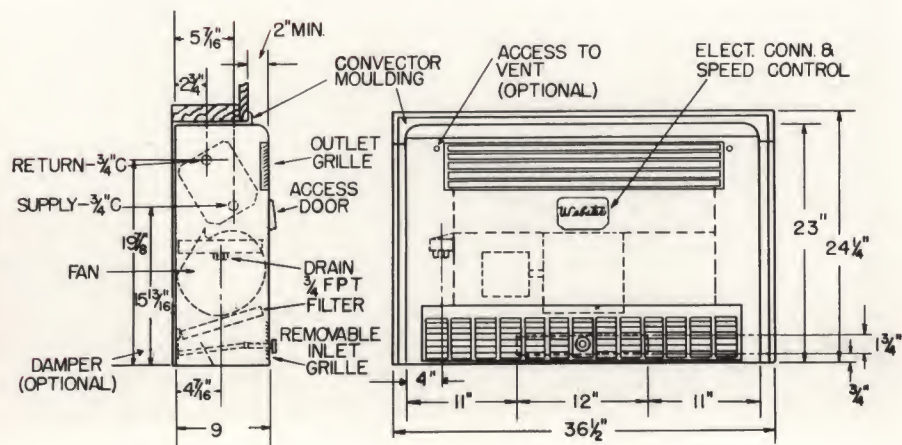
Riviera MODEL 82 VF



Riviera MODEL 82 VRF



Riviera MODEL 82 VSF



CFM
235
200
115

..... (HIGH)
..... (NORMAL)
..... (LOW)

CORRECTION SENS.	FACTOR TOTAL
1.00	1.00
0.91	0.93
0.51	0.60

1/40 HP

1.4 AMPS

115 WATTS

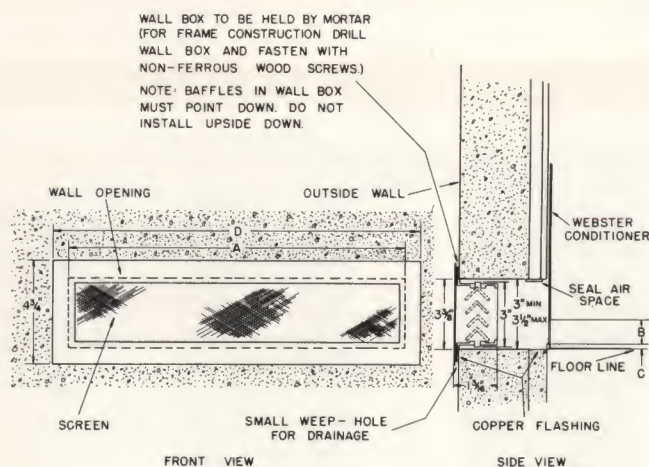
COOLING CAPACITIES

Inlet Water Temp. °F	Capac. and Water Temp. Rise	2.0 GPM-1.0 Ft P.D.			2.5 GPM-1.6 Ft P.D.			3.0 GPM-2.2 Ft P.D.			4.0 GPM-4.0 Ft P.D.		
		75° DB	80° DB	85° DB	75° DB	80° DB	85° DB	75° DB	80° DB	85° DB	75° DB	80° DB	85° DB
		63° WB	67° WB	71° WB	63° WB	67° WB	71° WB	63° WB	67° WB	71° WB	63° WB	67° WB	71° WB
40	Total	7270	8580	9920	7550	8820	10300	7690	9020	10420	7950	9270	10720
	Sens.	5260	6100	6920	5180	6220	7100	5460	6330	7200	5530	6420	7350
	T. R. °F	7.3	8.6	9.9	6.0	7.0	8.2	5.1	6.0	6.9	4.0	4.6	5.4
42	Total	6660	7960	9280	6950	8150	9680	7070	8350	9780	7230	8600	10160
	Sens.	4950	5780	6630	5100	5930	6780	5120	6020	6880	5220	6130	7020
	T. R. °F	6.7	8.0	9.3	5.5	6.5	7.7	4.7	5.6	6.5	3.6	4.3	5.1
45	Total	5720	7060	8220	5920	7200	8620	6040	7360	8670	6230	7550	8990
	Sens.	4550	5360	6400	4800	5500	6340	4680	5540	6400	4760	5620	6540
	T. R. °F	5.7	7.0	8.2	4.7	5.9	6.9	4.0	4.9	6.3	3.1	3.8	4.5
48	Total	4750	6090	7220	4950	6180	7550	5020	6320	7620	5190	6500	7770
	Sens.	4100	4920	5750	4180	5020	5900	4240	5100	5980	4270	5160	6080
	T. R. °F	4.8	6.1	7.4	4.0	4.9	6.0	3.3	4.2	5.1	2.6	3.2	3.9
50	Total	4190	5460	6640	4270	5500	6940	4320	5670	7000	4460	5800	7160
	Sens.	4000	4630	5480	3880	4720	5630	3900	4770	5650	3980	4830	5750
	T. R. °F	4.2	5.5	6.6	3.4	4.4	5.4	2.9	3.8	4.7	2.2	2.9	3.6

HEATING CAPACITIES AT 65° ENT. AIR

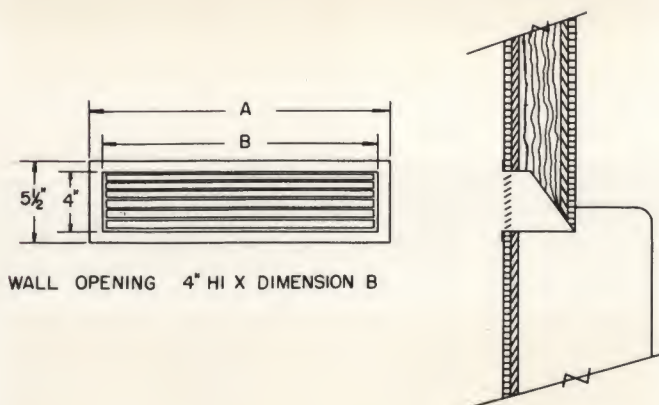
Inlet Water Temp. °F	CFM Std. Air	Fan RPM	2.0 GPM-1.0 Ft P.D.		2.5 GPM-1.6 Ft P.D.		3.0 GPM-2.2 Ft P.D.		4.0 GPM-4.0 Ft P.D.	
			BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F	BTUH	T. D. °F
140	235	1420	13900	14	14220	11	14620	10	15000	8
	200	1220	12560	13	12950	10	13180	9	13600	7
	115	700	7420	7	7580	6	7700	5	7880	4
160	235	1420	17500	18	18050	14	18530	12	19000	10
	200	1220	15900	16	16420	13	16720	11	17250	9
	115	700	9400	9	9600	8	9750	7	9530	5
180	235	1420	21200	21	21850	17	22450	15	23000	12
	200	1220	19300	19	19900	16	20250	14	20900	10
	115	700	11380	11	11650	9	11800	8	12200	6
200	235	1420	24900	25	25650	21	26300	18	27000	14
	200	1220	22650	23	23350	19	23750	16	24500	12
	115	700	13380	13	13650	11	13750	9	14170	7

ACCESSORIES



Fresh Air Wall Box

MODEL	SYMBOL	A	B	C	D
C-41	L-27	18½"	1¼"	½"	20"
C-82	L-27	18½"	1¾"	¾"	20"
C-90	L-27	18½"	1¾"	1"	20"
C-160	L-27	18½"	1¾"	1"	20"
C-240	L-38	26"	1¾"	1"	27½"



Dual Outlet

MODEL	A	B	REAR OUTLET	
			CFM	% CAPACITY
C-41	12½"	11"	25	17
C-82	12½"	11"	75	22
C-90	12½"	11"	55	14
C-160	12½"	11"	60	10
C-240	17¾"	16"	90	6

VENTILATION AIR

All Webster Riviera Conditioners may be provided with ventilation air openings providing for the introduction of 25% of rated CFM. A manually controlled, positive closing damper may be supplied as optional equipment when ventilation is required. Baffles are provided to prevent outdoor air by-passing coil surface.

OUTDOOR AIR INTAKES

Aluminum outdoor air intakes are 1-3/16" deep, 3" high with horizontal louvers designed for maximum elimination of rain and snow. The Webster intake, only 1-brick-course high is also provided with aluminum insect screen.

DUAL OUTLETS

All recessed cabinet models of C-41 and C-82 Riviera Conditioners and vertical cabinet models of C-90, C-160 and C-240 Conditioners may be provided with optional dual outlet to permit heating (or cooling) of small adjacent rooms if unit is mounted on an interior wall. Dual outlet package includes discharge register with manual damper.

DISCHARGE LOUVERS

All vertical cabinet models with face discharge and horizontal cabinet models are provided with horizontal bar type, individually adjustable louvers as standard equipment. These models (except C-41) may be provided with fixed vertical vanes behind the louvers for four way air distribution.

All top discharge vertical cabinets are provided with stamped louver grilles. Units can be equipped with fixed vertical vanes for four-way air distribution as optional equipment where specified. Built-in models are furnished with discharge collars as standard equipment.

All vertical cabinet Riviera Conditioners are provided with built-in 3 speed fan control switch. Horizontal mounted cabinet models and concealed units are provided with remote mounted electrical box with 3 speed fan switch. Box has decorative brushed aluminum cover.

FILTERS

All air handled by the unit, both outside air and recirculated air, is filtered before entering the fans or element. Only one filter is required in each unit. Renewable type filters are furnished as standard equipment. Permanent (cleanable) type filters are available as optional equipment when specified.

PIPING DIAGRAMS

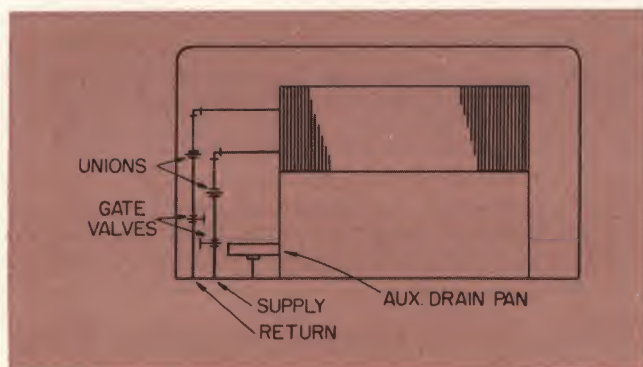
For a cabinet conditioner to deliver rated capacity it is necessary to follow certain precautions in piping. Improperly designed piping systems will prevent any unit from delivering its rated capacity. The following suggestions are based on good installation procedure and should be followed as closely as possible.

Units should be installed level and plumb and should be well supported with sufficient work space provided for convenient inspection and cleaning.

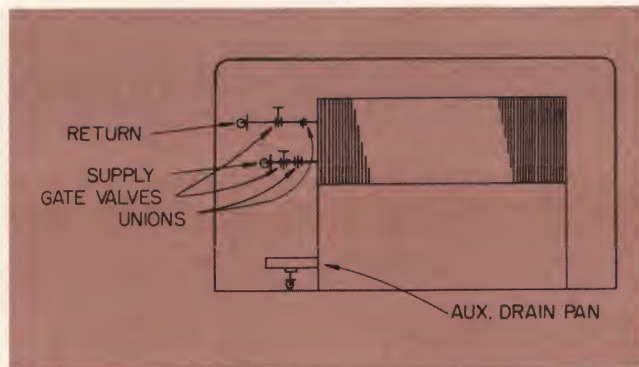
Provisions should also be made for proper drainage of all condensate lines. Installation of uninsulated auxiliary equipment should be made so that any condensate formed on exterior parts is collected by the auxiliary drain pan.

When installing cabinet conditioners adequate provision should be made for the expansion and contraction of the piping connected to the unit. All piping carrying chilled water should be insulated with high quality material including a vapor barrier.

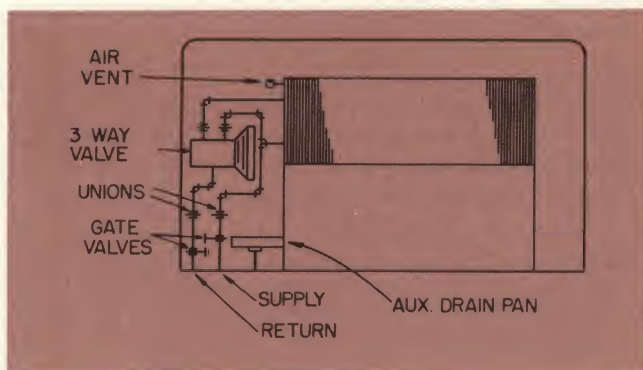
VERTICAL CABINETS—Supply piping is connected to bottom coil connection, return connected at top. Valves may be used for balancing flow through unit. Piping illustrated is through the floor.



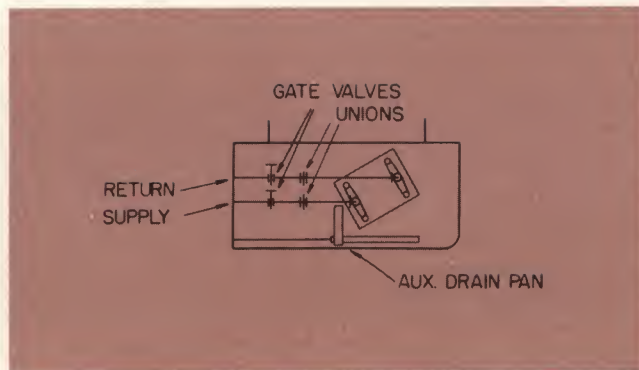
VERTICAL CABINETS—Supply piping is connected to bottom coil connection, return connected at top. Valves may be used for balancing flow through unit. Piping illustrated is through wall at rear of unit.



VERTICAL CABINETS—Illustrated is a three-way pneumatic valve control and valve cluster.



HORIZONTAL CABINETS—Supply, return and drain connections are carried within the unit through pipe spaces provided in end panel.



CONTROL SCHEMES

All Webster Riviera conditioners are provided with three-speed fan motors and manual speed control as standard equipment. A large piping cavity is provided on Models C-90, C-160 and C-240, for easy installation of manual or automatic control valves and auxiliary equipment. Following are a few suggested control schemes.

FAN CONTROL This control provides automatic ON-OFF operation of the unit fans. The primary control is a wall thermostat which may be low voltage with relay or line voltage. Change-over from heating to cooling is accomplished with either a manual switch or an automatic aquastat. During prolonged periods of inoperative fans and chilled water being circulated through the coil condensate may form on the fully insulated cabinet.

VALVE CONTROL This control provides for continuous fan operation, at selected speed while flow of water through the unit coil is either modulated or cut off. The primary control is either a wall thermostat or a return air stream thermostat. Where two-way valves are installed it is usually necessary to provide a pressure actuated bypass to prevent dead-ending of centrifugal type circulating pump.

Three way diverting valves may also be used and provide advantages of having full water supply available at each unit, system may be designed for a constant flow of water at all operating conditions, and water at design conditions is available at the unit at all times.

It is recommended that an auxiliary switch be provided to stop the flow of water through the coil when the fans are off.

SPECIFICATIONS

Furnish, deliver and install where shown on plans Webster Riviera Conditioners of sizes and types indicated thereon, constructed to conform to the following mechanical specifications:

CABINETS Cabinets shall be made of not less than 18 gauge steel. All metal parts shall be prepared for painting by a process of cleaning, degreasing, rinsing and phosphatizing to provide a strong bond between metal and paint. Models C-41 and C-82 shall have a baked gray prime coat. All other models shall have a baked green metallic enamel finish. Cabinets shall be constructed with rounded corners and have concealed fastening devices. The cabinet interior shall have insulating and sound absorbing material firmly secured by moisture resistant adhesive.

FANS AND MOTORS All units shall have forward curved, aluminum, centrifugal type fans, statically and dynamically balanced for quiet operation. Fans shall be mounted directly on the motor shaft. Motors shall be shaded-pole (permanent split capacitor) type, resilient-mounted on cushion bases and equipped with built-in thermal overload protection of the automatic reset type. The motor bearings shall have self-aligning floating end bearings of porous bronze with extra large oil reservoir felts. Floor mounted cabinet units shall be provided with an integral four-position, three-speed, reactor type speed control. Concealed and horizontal mounted units shall be provided with a four-position, three-speed, reactor type speed control mounted in an electrical junction box with brushed aluminum decorative box suitable for wall mounting.

DRAIN PANS All drain pans (except model C-41) shall be of double construction, fabricated with heavy gauge steel, primed with phenolic, and coated with asphalt by a hot-dip process. The double base pans shall be separated by an insulating air space. Model C-41 drain pans shall be constructed of heavy gauge steel, phosphatized, primed with phenolic, insulated with a thick mat of material, and coated with asphalt by a hot-dip process. Auxiliary drain pans of like construction shall be provided for piping connection side of units.

FILTERS All air, both recirculated air and outside air, shall be filtered by one (renewable) (permanent) type filter

before entering fans or heat transfer element. All filters (except Model C-41) shall be 1" thick, easily replaceable without removing front cover of cabinet. Model C-41 filter shall be 1/2" thick.

HEAT TRANSFER ELEMENT The heating-cooling element (except Model C-41) shall be not less than 3 rows deep and shall be constructed of round seamless copper tubes and aluminum plate type fins. Model C-41 shall have a 2 row coil of like construction. The aluminum fins shall be spaced by means of an integral collar to insure proper spacing. The joint between fin and tube shall be obtained by mechanically expanding the tube within the collar to effect a permanently tight thermal contact. The element shall be of the multi-pass serpentine type reversible (except Model C-41) for either left hand or right hand piping connections. Model C-41 shall have connections at the left hand end when facing the unit. All heat transfer elements shall be designed and tested for a working pressure of 100 psig.

DISCHARGE GRILLES All face discharge cabinet models and horizontal cabinet models shall be provided with horizontal adjustable discharge louvres to provide proper air distribution and prevent sweat formation on face of discharge. Discharge grilles of vertical cabinet, top discharge, shall be of the louver type stamped directly in the top of cabinet. Recirculating air openings shall be (toe-space) (stamped louver type). (Fixed vertical vanes for four-way air distribution are available as optional equipment except for Model C-41.)

OUTDOOR AIR INTAKE Outdoor air intakes shall be constructed of heavy gauge aluminum designed for maximum weather protection and provided with externally accessible aluminum insect screen. Intake box shall be not more than 1-3/16" deep and 3" high to fit in a standard brick course.

DAMPERS Provide and install in all vertical cabinet models (vertical concealed models) a damper and manual control operator to allow control of ventilation air. Damper shall be constructed with positive locking device when closed to prevent opening by wind pressure or leakage. Manual operator shall be located on exterior of cabinet for easy accessibility.

ENGINEERING SELECTION DATA

Webster Riviera Air Conditioning Units are designed for use with circulated hot and chilled water systems.

Several variables and their effects should be considered when selecting units to satisfy heat loss and heat gain loads. A list of these variables and the effect on the cooling capacities of the units is:

VARIABLE	EFFECT
High inlet air temperature	Increases total capacity
Low average water temperature in coil	Increases total capacity Increases latent capacity Decreases sensible heat ratio
High GPM	Decreases temperature rise across coil Increases total capacity

Prior to selection of the Riviera Conditioners the operating conditions of the water chiller are to be determined. Most chillers have an operating range of outlet water temperatures between 40°F and 52°F with temperature differentials ranging from 6°F to 12°F determined by the GPM flow through the chiller. In practice the temperature differential has been found to be 8°F to 10°F. Webster Riviera Conditioners have been designed to operate efficiently within the practical operating range of available water chillers.

From the calculated HEAT GAIN load an approximation of the chiller load and flow is determined as follows:

$$\frac{\text{HEAT GAIN load}}{1200} = \text{Tons of Refrigeration}$$

$$\frac{400\text{CFM (Tons of Refrigeration)}}{100\text{CFM/GPM}} = \text{Approximate flow rate in GPM}$$

Selection of the chiller can now be made from manufacturers engineering data. Given in this data will be the outlet water temperature, temperature differential, and pressure drop at selected flow rate.

To select Riviera Conditioners for individual room cooling loads determine the average water temperature available:

$$\frac{\text{Outlet water temp.} + \text{Inlet water temp.}}{2} = \text{Average water temp.}$$

Entering any one of the following sets of performance curves, plot AVERAGE WATER TEMPERATURE available in Fig. 1. Extend this point vertically to intersect inside design Dry Bulb line and read horizontally for SENSIBLE cooling capacity. Extend vertical line to inside design WET BULB line and read horizontally for TOTAL cooling capacity.

For determination of GPM required for the Riviera Conditioner selected plot in Fig. 2 the TOTAL cooling capacity and the WATER TEMPERATURE RISE. Extend capacity point vertically, temperature rise point horizontally, and read GPM at intersection.

To determine PRESSURE DROP through conditioner plot GPM in Fig. 3, extend vertically to reference curve, read horizontally for PRESSURE DROP in feet of water.

All Riviera Conditioners may be provided with openings and manual damper control to admit 25% outdoor air. To determine the capacities of the different models it is necessary to know the mixture air temperature conditions. This can easily be determined by plotting design outdoor air and indoor air conditions on a psychrometric chart. Draw a line between points, measure 25% of the distance from the room air point and read both dry bulb and wet bulb.

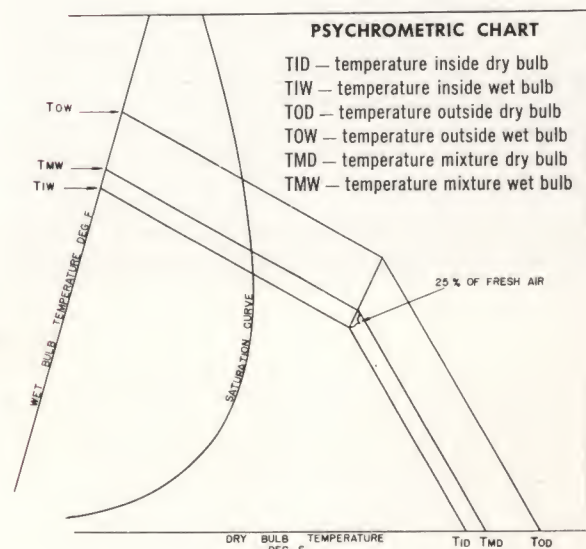
The temperature conditions of the mixture are used in Fig. 1 of the performance curves to determine total and sensible cooling capacities.

Heating capacities for all units are determined by using the tables on pages 7, 9, 11, 15 and 17 or the graph on page 27. Consideration of flow rate should be made. If the same circulating pump is used for heating and cooling its performance may change when the chiller is off the line. Most water chillers have a high pressure drop across the evaporator. With this resistance removed the circulating pump will deliver more gallons per minute.

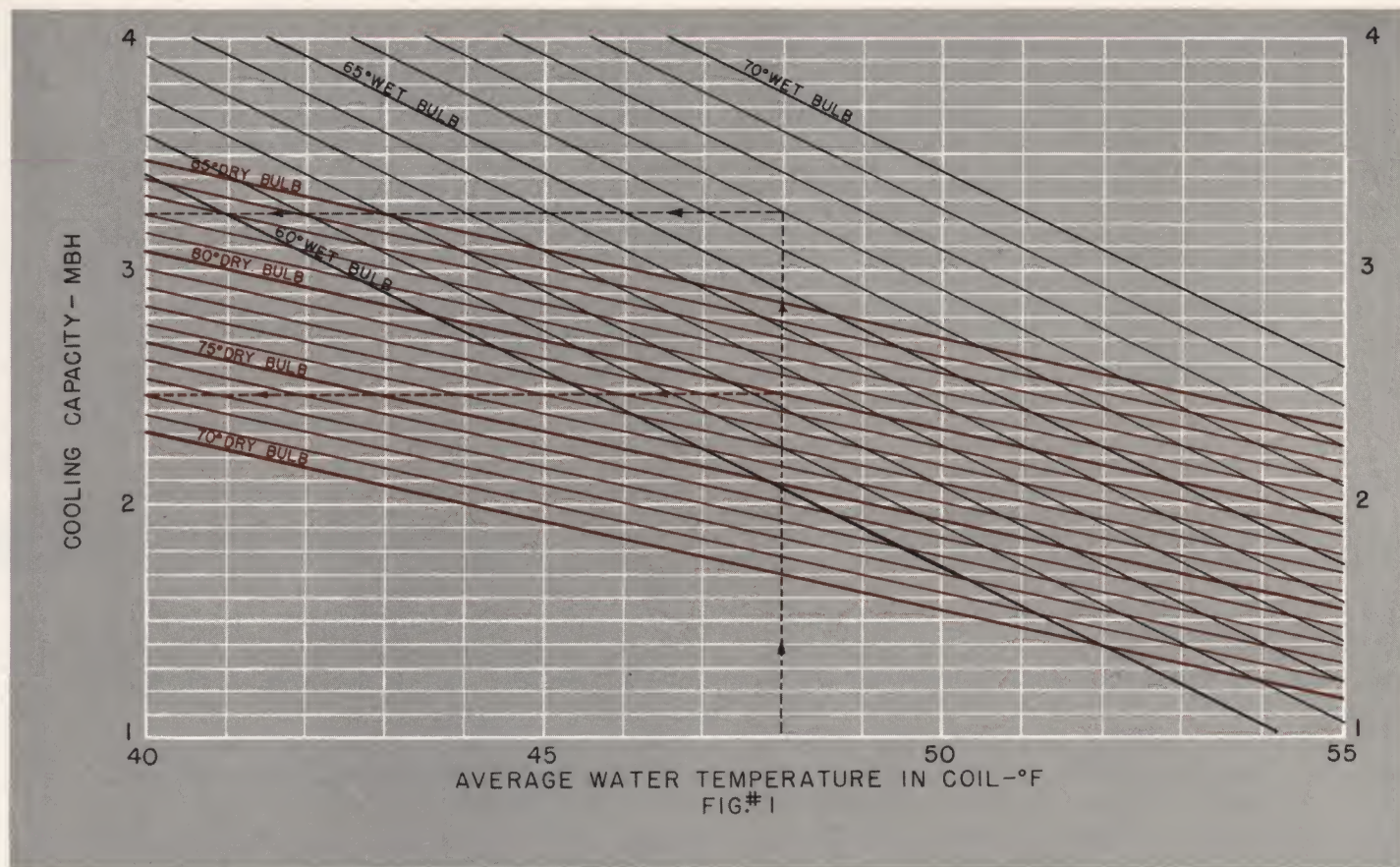
Choice of GPM per unit should be kept as low as practical to reduce pumping costs. However, too low a flow rate will result in air separation at the unit with resultant air binding. Flow rates should be kept above the critical velocity to prevent air separation or an automatic vent provided on each unit.

The minimum flow rates recommended for Riviera Conditioners without automatic air vents is:

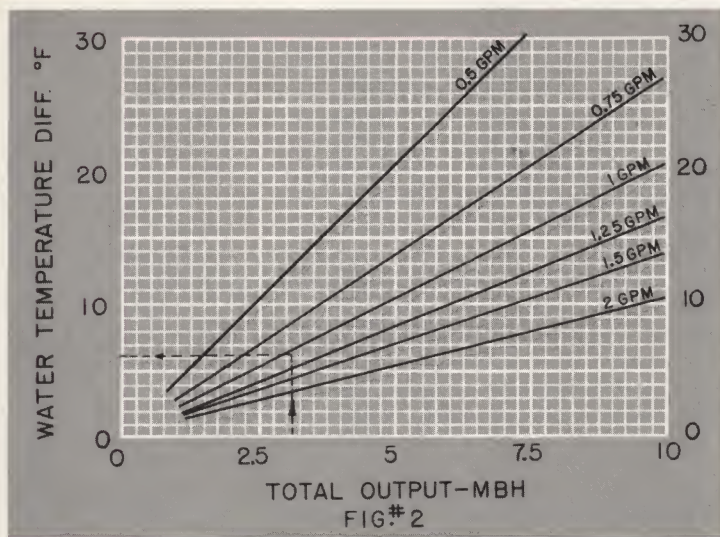
C-41	0.9 GPM
C-82	1.75 GPM
C-90	1.75 GPM
C-160	1.75 GPM
C-240	2.5 GPM



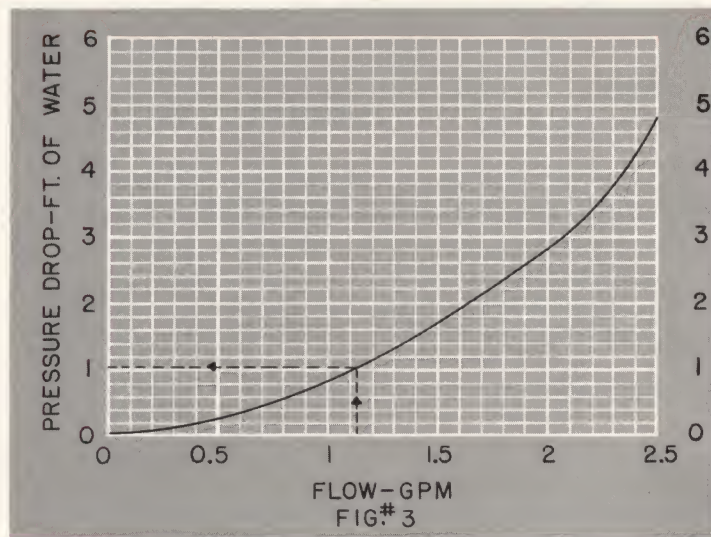
COOLING CAPACITIES



FLOW—GPM



PRESSURE DROP



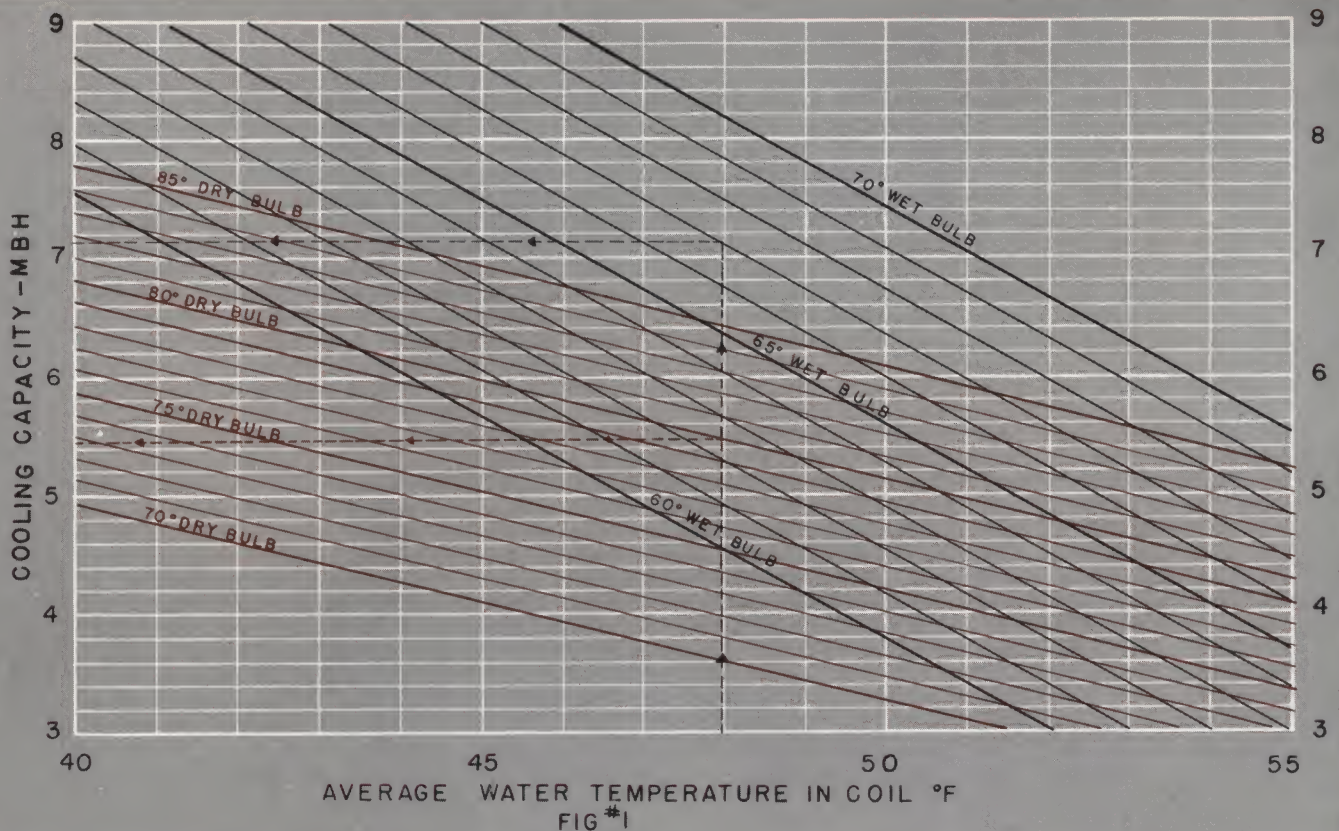
EXAMPLE

Assuming a water chiller selected will give the required capacity in tons, and with an outlet water temperature of 45°F with a 6° temperature drop. Capacity of units to be selected at 80°db; 67°wb entering air.

$$\frac{\text{Outlet Water Temp.} + \text{Inlet Water Temp.}}{2} = \text{Average Water Temp.}$$

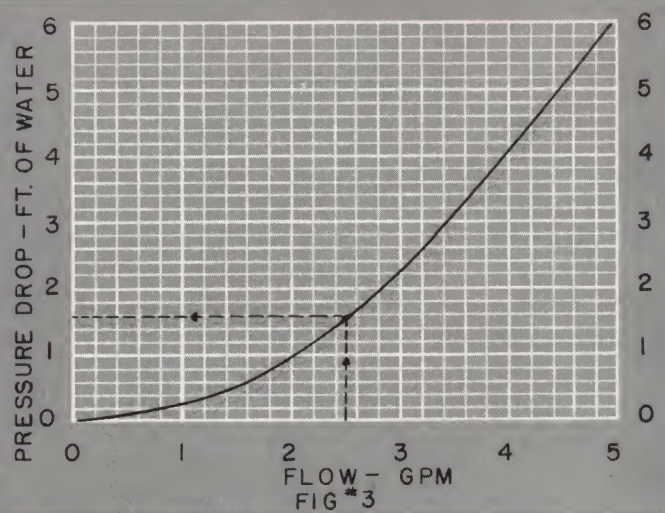
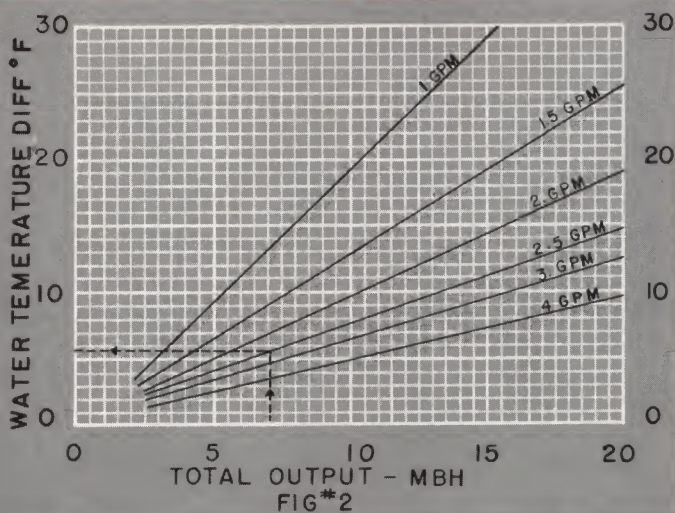
$$\frac{45^{\circ}\text{F} + 51^{\circ}\text{F}}{2} = 48^{\circ}\text{F Average Water Temperature}$$

From Fig. 1—Total Heat at 67°wb—3250 BTU/hr
 From Fig. 1—Sensible Heat at 80°db—2490 BTU/hr
 From Fig. 2—1.1 GPM which is above critical velocity
 From Fig. 3—1 ft press drop at 1.1 GPM



FLOW—GPM

PRESSURE DROP

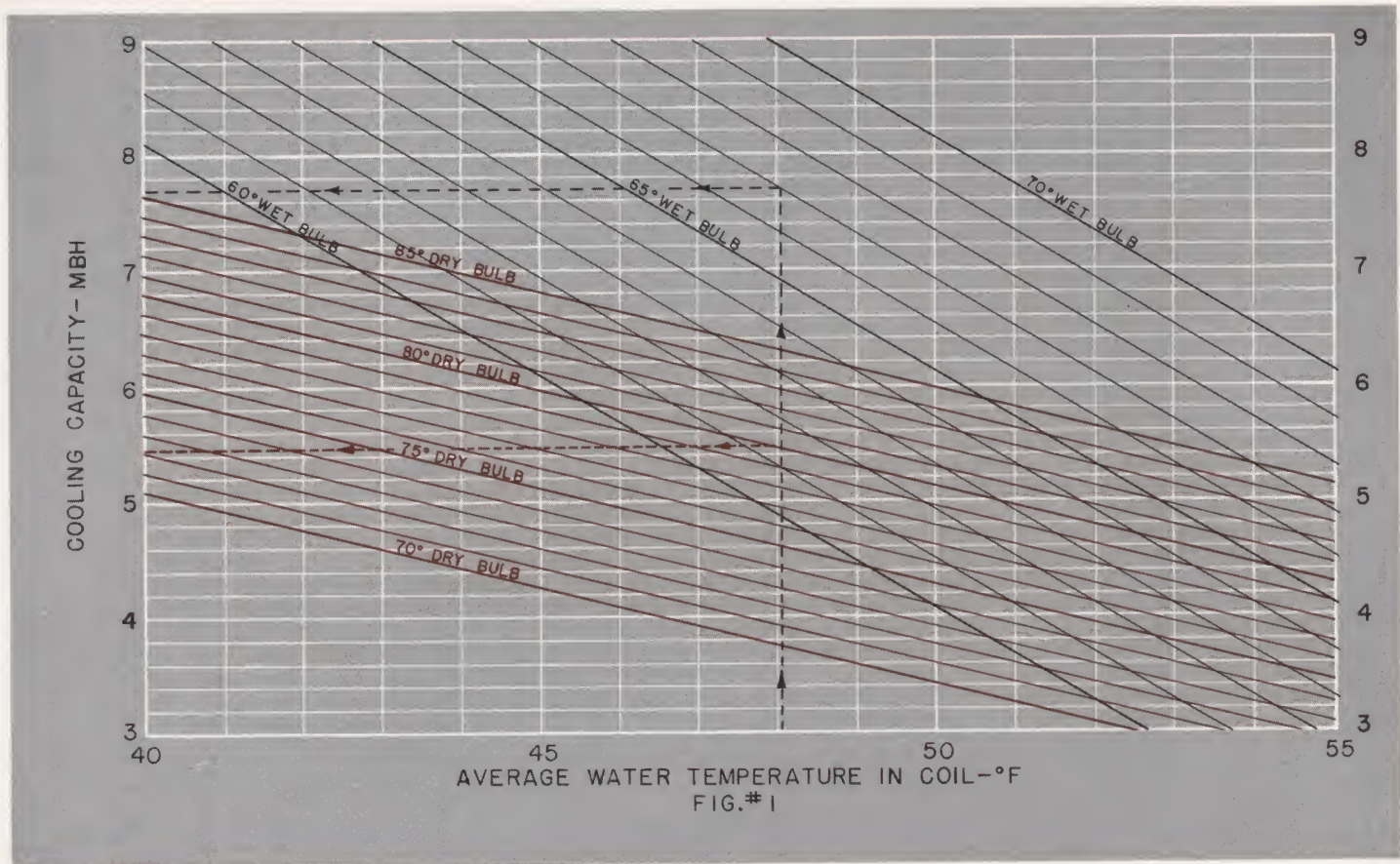


EXAMPLE

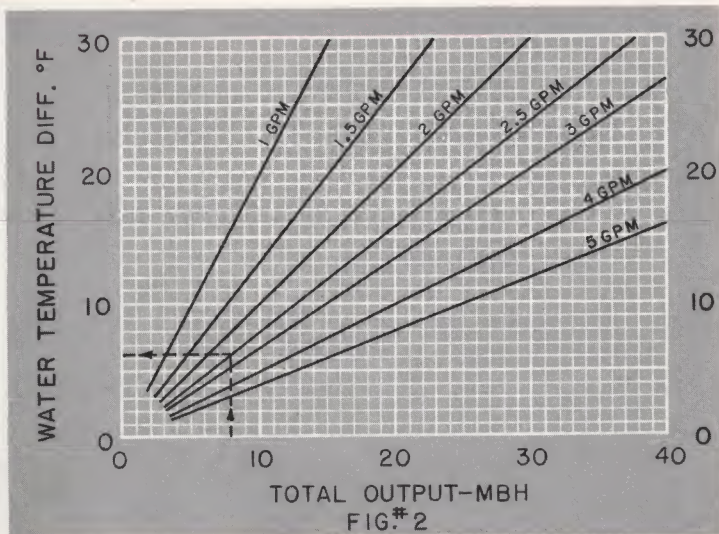
Assuming a water chiller selected will give the required capacity in tons, and with an outlet water temperature of 45°F with a 6° temperature drop. Capacity of units to be selected at 80°db; 67°wb entering air.

$$\frac{45^{\circ}\text{F} + 51^{\circ}\text{F}}{2} = 48^{\circ}\text{F Average Water Temperature}$$

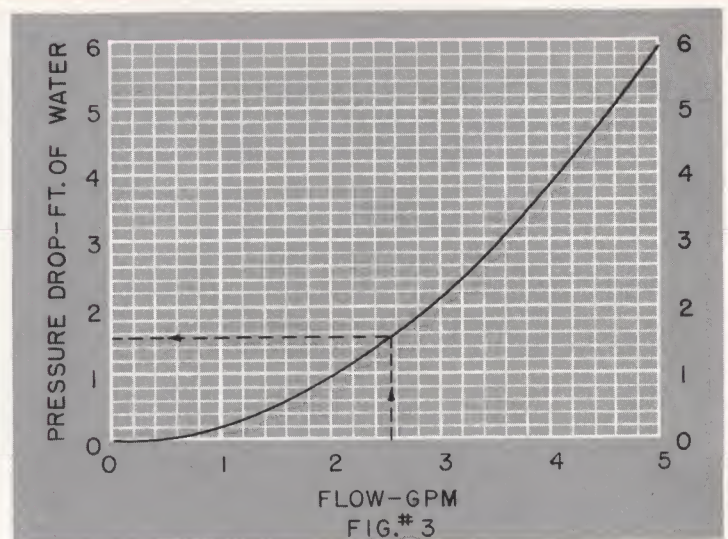
- From Fig. 1—Total heat at 67°wb—7150 BTU/hr
- From Fig. 1—Sensible heat at 80°db—5500 BTU/hr
- From Fig. 2—2.5 GPM which is above critical velocity
- From Fig. 3—1.6 ft pressure drop at 2.5 GPM



FLOW—GPM



PRESSURE DROP

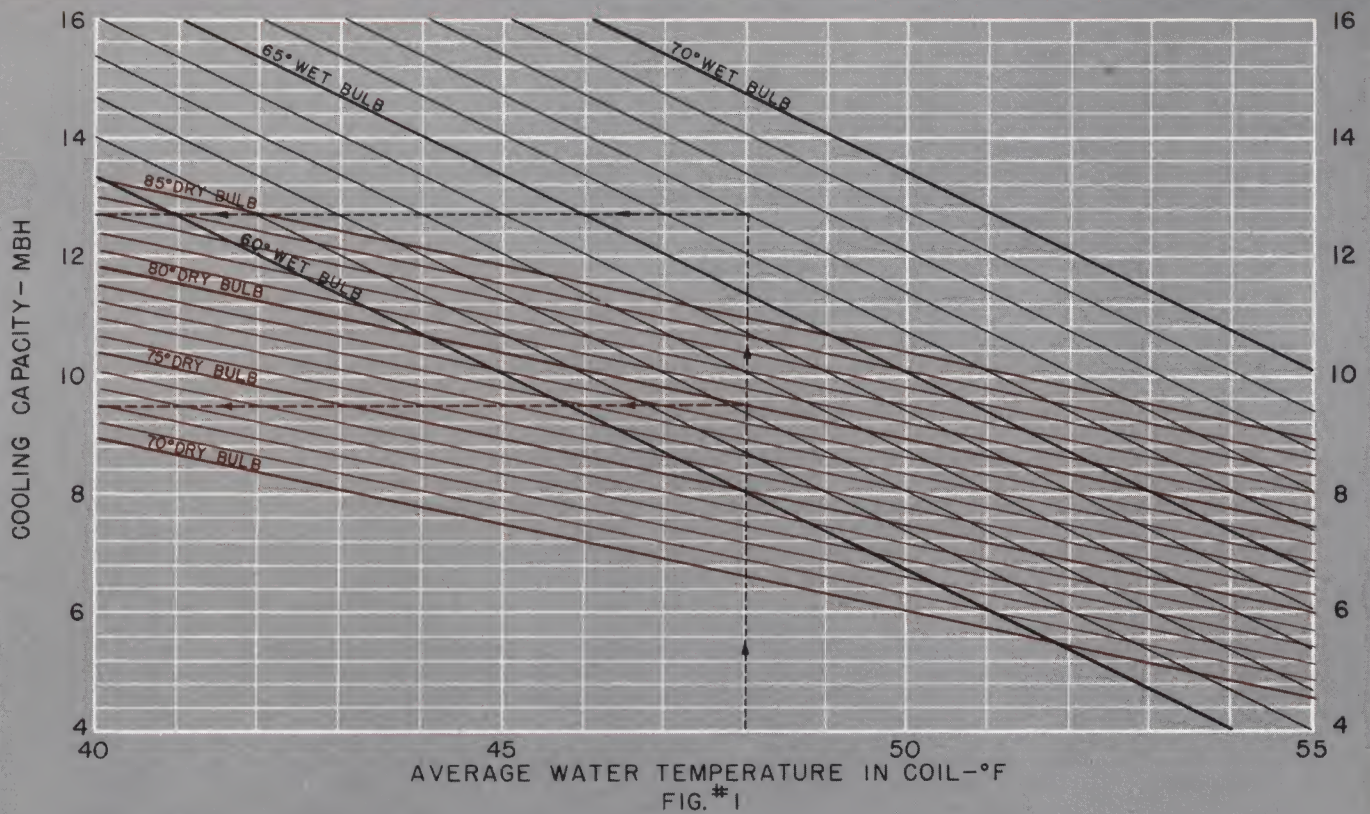


EXAMPLE

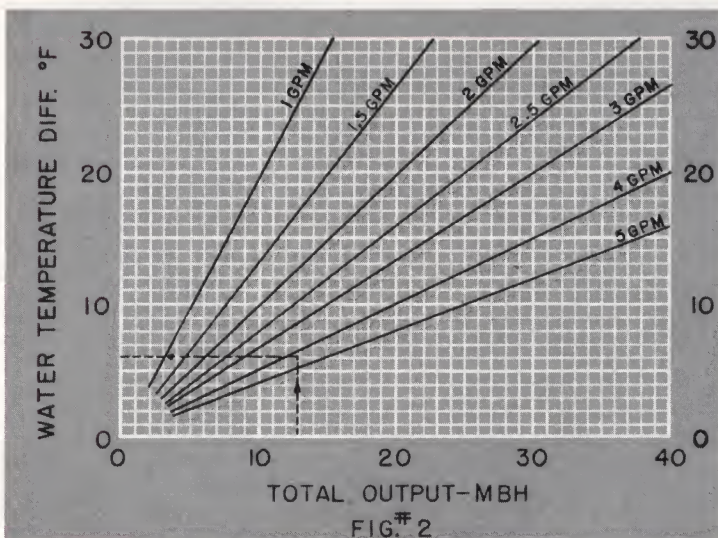
Assuming a water chiller selected will give the required capacity in tons, and with an outlet water temperature of 45°F with a 6° temperature drop. Capacity of units to be selected at 80°db; 67°wb entering air.

$$\frac{45^{\circ}\text{F} + 51^{\circ}\text{F}}{2} = 48^{\circ}\text{F Average Water Temperature}$$

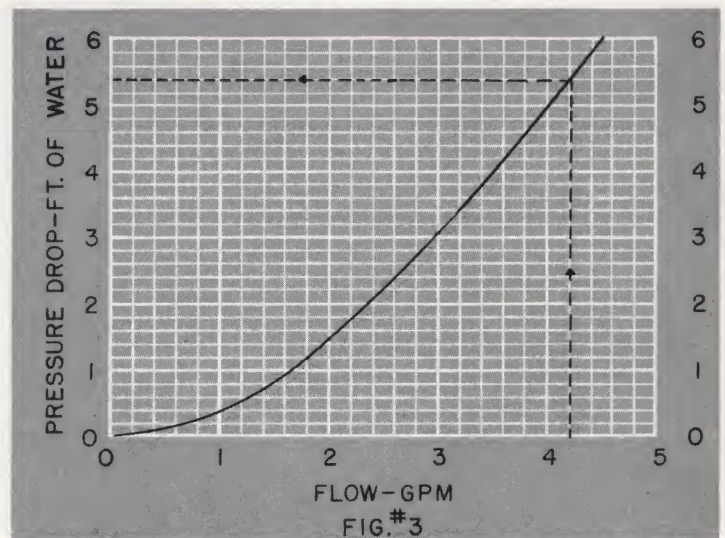
From Fig. 1—Total heat at 67°wb—7700 BTU/hr
From Fig. 1—Sensible heat at 80°db—5500 BTU/hr
From Fig. 2—2.5 GPM which is above the critical velocity
From Fig. 3—1.6 ft pressure drop at 2.5 GPM



FLOW—GPM



PRESSURE DROP



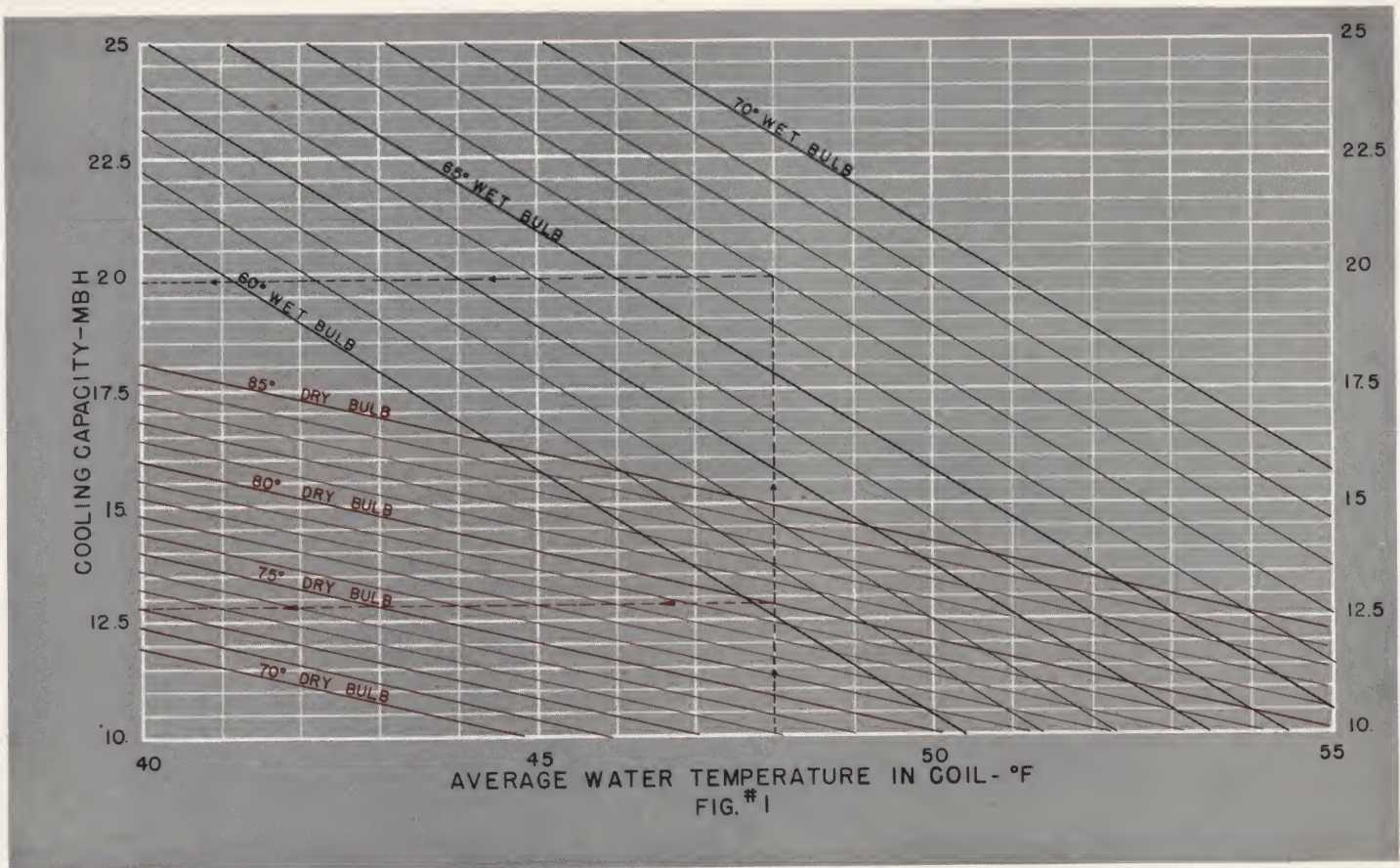
EXAMPLE

Assuming a water chiller selected will give the required capacity in tons, and with an outlet water temperature of 45°F with a 6° temperature drop. Capacity of units to be selected at 80°db; 67°wb entering air.

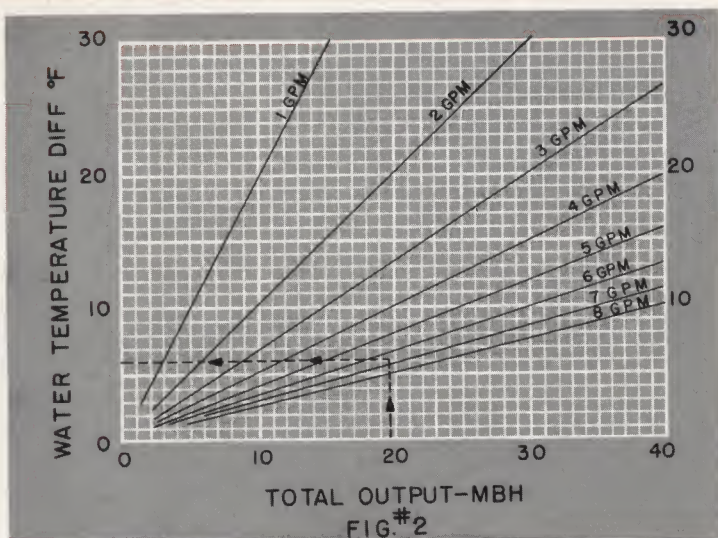
$$\frac{45^{\circ}\text{F} + 51^{\circ}\text{F}}{2} = 48^{\circ}\text{F Average Water Temperature}$$

From Fig. 1—Total heat at 67°wb—12,700
 From Fig. 1—Sensible heat at 80°db—9,300
 From Fig. 2—4.2 GPM which is above the critical velocity
 From Fig. 3—5.4 ft pressure drop at 4.2 GPM

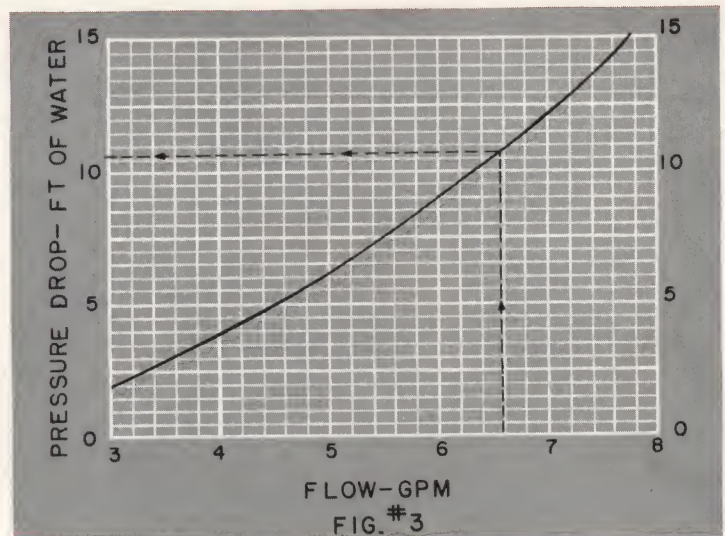
COOLING CAPACITIES



FLOW—GPM



PRESSURE DROP



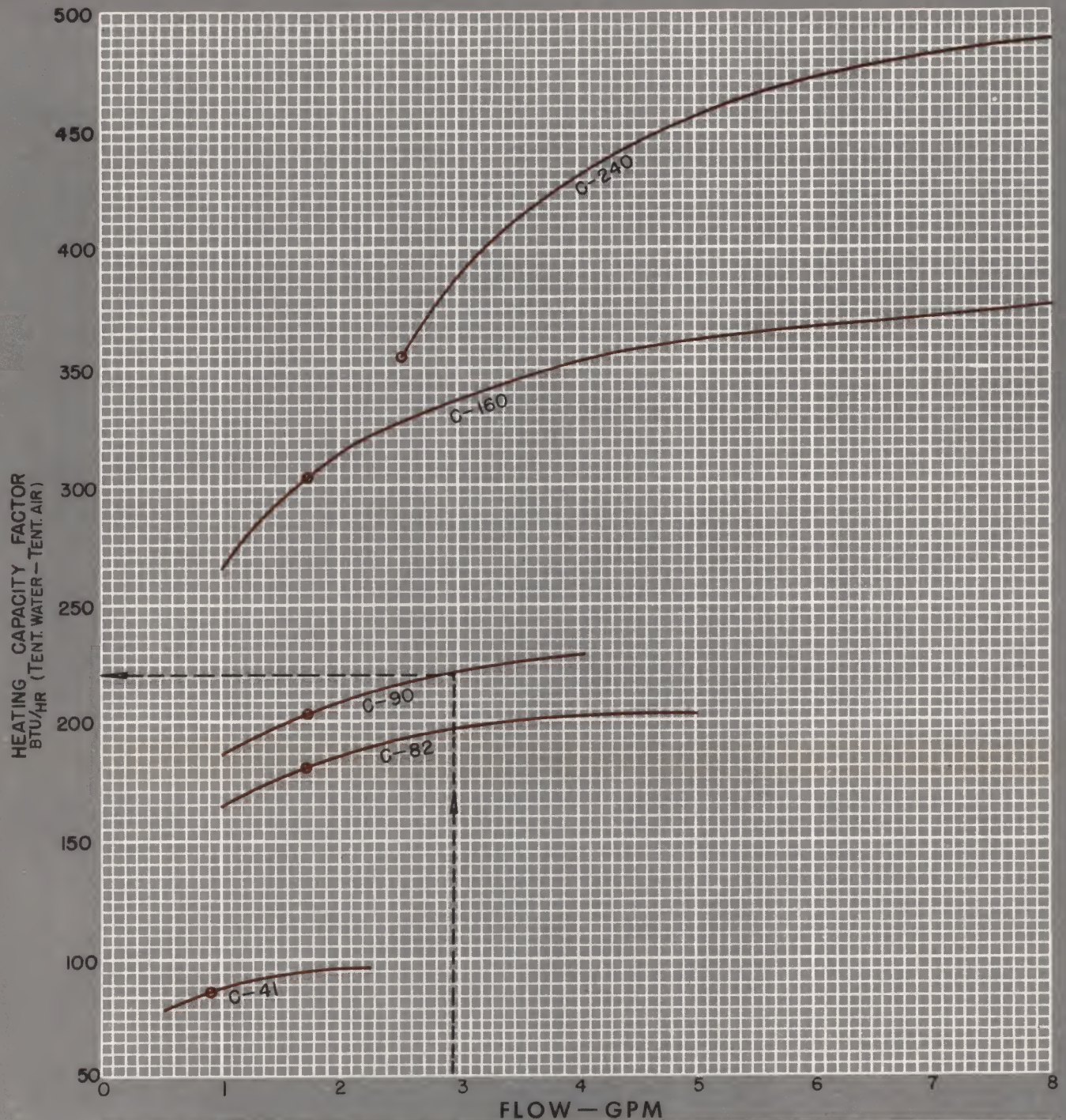
EXAMPLE

Assuming a water chiller selected will give the required capacity in tons, and with an outlet water temperature of 45°F with a 6° temperature drop. Capacity of units to be selected at 80°db; 67°wb entering air.

$$\frac{45^{\circ}\text{F} + 51^{\circ}\text{F}}{2} = 48^{\circ}\text{F Average Water Temperature}$$

- From Fig. 1—Total heat at 67°wb—19,800
- From Fig. 1—Sensible heat at 80°db—12,800
- From Fig. 2—6.6 GPM which is above the critical velocity
- From Fig. 3—11.2 ft pressure drop at 6.6 GPM

HEATING CAPACITIES



FAN SPEED	C-41	C-82	C-90	C-160	C-240
HIGH	1.00	1.00	1.00	1.00	1.00
NORMAL	0.76	0.90	0.75	0.78	0.87
LOW	0.52	0.50	0.50	0.50	0.60

⊙ INDICATES RECOMMENDED MINIMUM FLOW RATE WITHOUT AUTOMATIC AIR VENT

EXAMPLE

Find the heating capacity of model C-90 Riviera Conditioner with 3GPM, 160°F Entering Water, 70° Entering Air.
Draw a line vertically from 3GPM inter-

secting the curve for model C-90. Plot horizontally and read Heating Capacity Factor 230. Multiply 230 (TW-TA), 230 (160-70) = 20700 BTU/HR.

FAN SPEED	CORR. FACTOR	HEATING CAPACITY
HIGH	1.00	20700
NORMAL	0.75	15525
LOW	0.50	10350

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